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8 April 1983

## CHINA REPORT ECONOMIC AFFAIRS

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## NATIONAL POLICY AND ISSUES

### 'JINGJI YANJIU' ON CHINA'S WAGE SYSTEM REFORM

HK241040 Beijing JINGJI YANJIU in Chinese No 2, 20 Feb 83 pp 44-50

[Article by Zhao Lukuan [6392 1462 1401] of the Labor Economics Research Office of the People's University of China: "On the Reform of Wage System in China"--"written in October 1982 and revised in December"]

[Text] It was pointed out by Comrade Hu Yaobang in his report at the 12th CPC Congress that we must reform our labor, wage and price systems step by step to ensure a sound development of our national economy. At the first plenary session of the 12th CPC Central Committee, he further specifically said that from 1984 on, the CPC Central Committee and provincial, municipal and regional authorities must mainly devote their efforts to the study and gradual implementation of an overall reform of our education, labor, wage, price and other systems. The CPC Central Committee has now put the reform of our wage system on its daily agenda. The accomplishment of this reform will certainly greatly promote the development of our country's socialist modernization construction.

The wage system is a specific form of distribution. It is an important part of the entire economic system. From the viewpoint of macroeconomic management, wage management is related to the four links of reproduction, namely, production distribution, exchange and consumption; and it involves various sectors and regions in the national economy and is connected with the relationships of economic interests between the following four parties: the state, the localities, the enterprises and the individual workers. Without wage management on a macroeconomic scale, comprehensive macroeconomic management would not be possible. From the viewpoint of microeconomic management, wage management is connected with the reproduction of the labor force working at enterprises, with the proportional relationships between various factors of production employed by enterprises, with the composition of the labor force working at enterprises, with the economic benefits achieved by enterprises, and with workers' material interests. If enterprises do not develop the role of wages as a lever, microeconomic management will be out of the question. Thus, the reform of our wage system is an important element of the overall reform of our economic system.

There are many problems within our country's existing wage system that must be promptly solved. Reforming our wage system is necessary in developing

socialist construction and is a pressing demand of the broad masses of people. This reform is inevitable. I will now present my understanding of the question of reforming our wage system and I solicit comrades' criticisms.

#### 1. Principal Defects of Our Country's Existing Wage System

Our country's existing wage system was basically established in 1956. As early as in 1957, Comrade Zhou Enlai said at the third plenary session of the 8th CPC Central Committee that the wage system established in 1956 was "not well geared to our country's actual condition," and he proposed a further reform of our wage system. Now 25 years have elapsed, but our wage system has not undergone any reform. Consequently, wage problems have been increasing and defects have become increasingly more serious, with bad old practices dying hard.

We all know that there are four major problems with wages in our country, namely, "lowness," "egalitarianism," "confusion" and "rigidity." "Lowness" refers to the low wage level. "Egalitarianism" refers to egalitarianism in handling wage relationships. "Confusion" refers to confusion in criteria for wage payment. "Rigidity" refers to the over-rigidity of our wage management system.

Which of these four major problems is the principal one? People's views on this question greatly differ. I think that "egalitarianism" is the principal problem.

The low wage level naturally leads to a certain degree of restriction in implementing the principle of distribution according to work done. However, the level of wage income basically depends on the level of national economic development. The low per-capita national income in our country at the present stage results in the low wage income level. This situation cannot rapidly change with a reform of the wage system. Moreover, the question of wage level involves another implication, namely, the wage content in a unit of use value. In light of this implication, our country's wage level is not low, because our country's labor productivity is very low. Thus, considering the reform of our wage system, the low wage level is not the principal problem.

Over-rigidity of the wage management system does really undermine the enthusiasm of the enterprises and workers and impede the development of economic construction. However, "rigidity" in the main merely concerns wage management methods, but "egalitarianism" concerns the content of wage management and the guiding ideology governing it. An overly rigid wage management system is often the fruit of egalitarian guiding ideology.

Confusion in criteria for wage payment must naturally be eliminated through a reform of the wage system. However, "confusion" is merely a phenomenon, and the essence of the problem is irrationality. The root of "confusion" is "egalitarianism" and "rigidity," particularly the former.

Thus, to criticize and eliminate egalitarianism is an important principle to follow in reforming our wage system. Without doing so, we cannot really reform our country's wage system.

Currently, egalitarianism quite generally exists in the distribution of personal consumer goods in our country. "Eating out of the big pot" with the "iron rice bowl" in hand is the principal manifestation of egalitarianism in wage payments. Anyone who becomes a worker of a unit under ownership by the whole people can get an "iron rice bowl" and can "eat out of the big pot." Whether his attitude concerning work is good or bad, and whether his contribution to work is great or little, he receives a standard wage payment by the month or by the day. This is a form of egalitarianism among individual workers. The workers of any unit under ownership by the whole people can be promoted according to the same proportions and can get bonuses according to the same scales, whether the enterprise is well-managed or not and whether its contribution to the state is great or small. This is a form of egalitarianism among enterprises. These two forms of egalitarianism corrupt social values in our country, undermine the socialist enthusiasm of the broad masses of workers, lower the quality of our contingent of staff and workers, and impede the raising of economic efficiency and the improvement of the people's livelihood. In a word, they are gravely detrimental to our country's cause of socialist construction.

Under the condition of egalitarianism, people do not care about the result of their work and need not bear social responsibility for it. Economic information is in a chaotic and primitive state. Positive economic feedback is replaced by a negative vicious cycle. Practicing egalitarianism leads to people's lack of enthusiasm for work, which leads to low economic efficiency, which leads to a low level of consumption in people's livelihood, and which further leads to people's lack of enthusiasm for work. This is the vicious cycle caused by egalitarianism. Many conscientious workers say with deep feeling: "Eating out of the big pot with an iron rice bowl in hand has made many of our workers lazy and has impoverished our country." This is a powerful criticism of egalitarianism.

Some comrades hold that at the present stage, when our country's per-capita national income is very low, we are forced to practice egalitarianism to ensure a basic standard of living for all people; otherwise, a considerable proportion of our population will be inadequately fed. These comrades thus draw the conclusion that in our country, egalitarianism is inevitable and justified at the present stage. I think that this viewpoint is theoretically untenable and is harmful when applied to practice. True, if the per-capita national income is very low, the degree of realization of the law of distribution according to work done is unavoidably limited by objective economic conditions; and under the condition that two different systems of public ownership of the means of production coexist and enterprises are relatively independent economically, the scope of practicing "equal pay for equal work" is also limited. However, these definitely must not be taken as reasons for practicing egalitarianism. When we determine the minimum wage level, we must consider the level of minimum living expenses for a locality during a given period. When we plan for differences in wages for different

localities, departments, enterprises and types of personnel, we must consider the relationships between related localities and so on. This is the way in which a socialist state exercises planned macroeconomic control over the distribution of personal consumer goods. This differs completely from egalitarianism.

Some other comrades hold that when the per-capita national income is very low, we must use the method of egalitarian distribution to satisfy the basic livelihood needs of the elderly, the very young, the sick and the disabled, and the expenses incurred for this purpose must be taken as a necessary constituent part of wages. I think that this viewpoint is also incorrect. The principal function of wages in socialism is to mobilize people's enthusiasm for work through distribution according to work done. Under socialist conditions, determination of a wage must be governed by the principle of social optimization which implies a reward for the diligent and a penalty for the lazy and a direct proportion between work done and income. As for the elderly, the very young, the sick and the disabled, they should be given the necessary assistance according to the principle of revolutionary humanitarianism, that is, social insurance or social relief. Wages on one side and insurance and relief on the other are two different things with different social functions. They must be handled according to different principles and by different methods for the sake of all the people's interests and social development and progress. To confuse these two things is harmful; it is disadvantageous to a rational solution of the wage problem and unprofitable to a satisfactory resolving of the question of insurance and relief; and it will ultimately be detrimental to society's interests.

Some comrades worry about the possibility that in handling wage relationships, if we completely eliminate egalitarianism, a great disparity in income will result. I think this is a muddled idea. When we talk about a great disparity in income, we mean that some people's reward for work persistently surpasses their contribution to work, while some other people's reward for work persistently falls short of their contribution to work. One point is common to a great disparity in income and egalitarianism: they both represent a violation of the principle of distribution according to work done. Thus, it can be seen that these comrades' worry is groundless.

Our country's experience over the past 30 years has demonstrated that egalitarianism is a very obstinate trend of thought. Whenever the political climate is favorable for its recurrence, it will reappear, disguised as socialism or communism, to mislead and intimidate people and to undermine our cause of socialist construction. The several grave setbacks in our country's economic construction were inextricably related to the evil influence of egalitarianism. Egalitarianism is a deadly enemy of socialism. To ensure a smooth development of socialist economic construction, we must spare no effort in opposing various forms of egalitarian trends.

Of course, our country's policy regarding distribution according to work at the present stage is drawn up and implemented under the guidance of the communist ideological system. It is also only under this guidance that



the policy of distribution according to work done can be smoothly implemented and egalitarian tendencies can be completely overcome. We must both build up a high degree of both socialist material civilization and socialist spiritual civilization with communist ideology as its core. We must persist in both socialist economic policies and communist ideological education; and we must practice the socialist system of distribution according to work done and develop the communist spirit of working without remuneration as the goal. This is our strategic guiding principle. Only by adhering to this principle can our socialist construction smoothly develop along the correct path.

## 2. Practical and Effective Implementation of the Principle of Distribution According to Work Done

Distribution according to work done is easy to discuss but difficult to practice. Why? An important reason is that people have different interpretations of "work done" and different views about how to measure "work done." We must solve this problem in theoretical study and in practice if we want to implement the principle of distribution according to work done in a practical and effective way.

An important reason for the differences in interpreting "work done" is that the "work done" in Marx's and Engel's conception of distribution according to work done greatly differs from the "work done" in distribution according to work done in real life. "Work done" in Marx's and Engels' conception of distribution according to work done has the following several characteristics:

First, it is the living labor expended in the production process by the individual worker. Marx said that what the worker "gives to society is his individual quantity of labor...the individual labor time of the individual producer is the part of the social working day contributed by him." ("Selected Works of Marx and Engels," "Critique of the Gotha Program," Vol 3, p 11)

Second, it is directly measured by the natural measure of work done, namely, time. Engels said that under the condition of socialism, "people can handle all this in a very simple way, without requiring the intervention of the well-known 'value.'" ("Selected Works of Marx and Engels," "Anti-Duhring," Vol 3, pp 348, 241)

Third, it is measured according to uniform criteria for the entire society. According to Marx's and Engels' conception, under the condition of socialism, the means of production over the entire society are owned by the whole people and various production units do not have relatively independent economic interests, so that it is natural and reasonable that each producer's quantity of work done should be directly measured according to uniform criteria for the entire society.

Fourth, a small quantity of complicated labor does not need to be converted into a larger quantity of simple labor. Engels said that in a socialist society, the cost of training learned and skilled workers "is borne by society. Therefore, the fruit created by complicated labor, namely, a greater value, also belongs to society. The worker himself has not had any additional demand." (Ibid)

Thus, "work done" in Marx's and Engels' conception of distribution according to work done considerably differs from the "work done" in distribution according to work done in practice. This is basically because their conception of socialism differs considerably from socialism in practice. In their conception, relations of commodity money do not exist in a socialist society, and an economic center which represents the interests of the entire society is the only main economic body, which can perfectly, rationally and directly plan and organize the integration of each worker with the means of production.

However, the practice of our country and other socialist countries demonstrates that in a real socialist society, there exist two forms of public ownership of means of production as well as ownership by individual workers as a supplementary form, and there also exist commodity money relations as well as the relative economic independence of enterprises. Under these conditions, "work done" is not as simple as that envisioned by Marx and Engels.

In the stage of socialism, with the existence of commodity money relations, the "work done" in distribution according to work done must be subject to the principle of economic planning and must also be compatible with the requirements of commodity money relations. That is, with money as the unit of measure, it must be measured at both the macroeconomic and microeconomic levels, and both measurements must be flexibly integrated. On the one hand, through the calculation and measurement of and supervision over total wage payments, average wages, principal criteria for wage payments, maximum and minimum wages, the state must, at a macroeconomic level, control the wage level for the entire society, and coordinate wage relationships between various localities, departments and enterprises. On the other hand, the relative independence of enterprises as the main body in the microeconomic arena must be acknowledged, so that the wage of a worker at an enterprise is not only linked to his personal contribution to work, but is also linked to the actual fruit of operation, as acknowledged by society, of his enterprise. In real economic life, measurements of work done at these two levels are interwoven. It can thus be seen that under the condition of socialism, macroeconomic and microeconomic measurements depend on and act as constraints on each other, and the wages of various types of workers are determined on the basis of integration of the interests of three parties: the state, the enterprise, and the individual. Scientifically-determined work quotas constitute the most important tool used by enterprises for microeconomic calculation and measurement of "work done" in the context of distribution according to work done; and total wage payment and criteria for wage payments constitute the most important tool used by the state for macroeconomic calculation and measurement of "work done" in the context of distribution according to work done. Concerning measurement of work done and determination

of wages, we must oppose the "leftist" tendency which negates the enterprises' status as the main body in the microeconomic arena and which requires the entire society to be subjected to a single-level measurement of work done and distribution according to work done; this tendency actually disregards differences between stages; and we must also oppose the rightist tendency which negates the state's status as the main body in the macroeconomic arena and which demands letting the "invisible hand" (spontaneous market mechanism) govern everything.

As mentioned above, according to his own conception of a socialist society's characteristics, Marx formed the theory of a single-level distribution according to work done (society directly administering distribution to workers according to work done). However, in practice, distribution according to work done actually differs greatly from Marx's conception. As believers in scientific socialism, we should not act against the spirit of history to set overly high demands on classical Marxist writers, but should rely on our real practice in distribution according to work done to develop Marx's theory of distribution according to work done. On the basis of integrating theory with practice, we should also seek a practical and effective way and method of implementing the principle of distribution according to work done.

Whether we calculate and measure work done on a macroeconomic or microeconomic level, we must correctly solve the problem of the standard of measurement. Under the condition that commodity money relations exist, the direct measurement of "work done" according to one's individual natural labor time as envisioned by Marx is both irrational and impossible. Marx said that if the production of commodities exists, money is "the social embodiment of man's labor." ("Das Kapital," People's Publishing House, 1975 edition, p 116) In the stage of socialism, when commodity money relations exist, the measurement of "work done" in the context of distribution according to work done must take money as the standard. Of course, to enable money to relatively accurately perform the function of a standard of measurement, we must make the prices of consumer goods approach the goods' social value; otherwise, distribution according to work done will be distorted owing to irrational prices.

To specifically measure work done, we must also correctly solve the important question of what form of labor should be taken as the basis for measuring "work done."

There are three forms of human labor: the latent, moving and congealed forms. The latent form is working ability; the moving form is the expenditure of labor power; and the congealed form is the fruits of labor. I think that under the conditions that commodity money relations exist and that the reward for complicated or heavy work surpasses the reward for simple or light work, we should in principle take the fruits of labor as the basis for measuring "work done." The fruits of labor are the use value created in people's work. They appear as certain material products or services. Of course, when we say the fruits of labor, we refer to those which are compatible with social needs. "Products of labor which cannot satisfy consumers' needs or bring about appropriate economic results that benefit society embody only labor of low effectiveness or even ineffective labor."

In real life, we can find calculations of remuneration mainly according to work ability (the latent form of labor). For example, at institutions in towns and cities, some workers receive fixed standard wages whether their work is heavy or light, well done or badly done, and whether they perform much or little work. Their wage grades are determined through prior appraisal. Another example is that certain communes and production teams have for a time determined grades for and thus rigidly allocated workpoints to their commune members simply according to age, sex and physical ability. These methods of calculating remuneration according to the latent form of labor are obviously unreasonable.

If so, can remuneration be calculated according to the moving form of labor? In our country, the method of "ascertaining work done on the basis of fixed work quotas" had been used in agriculture. This form of calculating remuneration was mainly based on the moving form of labor. It was better than "inflexible awarding of workpoints that are based on invariable criteria" or "flexible appraisal for awarding workpoints that are based on invariable criteria." However, because it was basically divorced from the fruits of labor, it could not enable people to really implement the principle of distribution according to work done. Some comrades in academic circles in our country hold that calculating remuneration according to the moving form of labor is most compatible with the principle of distribution according to work done. Strictly speaking, however, it is impossible to directly measure labor in moving form. Even the direct and non-relative measurement of work done envisioned by Marx and Engels cannot be completely divorced from the fruits of labor. Engels said that in a socialist society without commodity money relations, "daily experience will directly tell what quantity of social labor is needed on the average to produce this product. Society can know through simple calculation how many working hours are embodied in a steam engine, 100 liters of recently harvested wheat, or 100 square meters of cotton fabric of a certain quality." ("Selected Works of Marx and Engels," "Anti-Dühring," Vol 3, p 348) Thus, the measurement of labor must definitely not be divorced from the objects or services created by labor. If a "measurement of labor" is divorced from the fruits of labor, its accuracy will be very doubtful, and even more doubtful will be its social usefulness. However, constrained by certain ideas laid down in some books, we (including the author) cannot discover a practical and effective method of resolving this question.

Over the past 3 years, guided by the line and guiding principles decided upon at the third plenary session of the 11th CPC Central Committee, the 800 million peasants in our country have shown great creativity, broken through the restrictions of the traditional "workpoint system," and discovered a practical, simple and clear-cut form of distribution according to work done. Various types of responsibility systems whereby remuneration is linked to output have sprung up in our country's countryside. The success of these systems has been unprecedented and extraordinary, mainly because they comply with the socialist principle of calculating remuneration according to the final fruits of labor.



The magnitude of the fruits of a worker's labor depends on the quantity of effective labor that is expended by him and acknowledged by society, and is also closely related to the quantity and quality of the means of production owned by the state and used by him as well as the merits and demerits of local conditions of natural resources, geographical position and transport. Therefore, in order that workers of various enterprises may be placed on a relatively equal basis in distribution according to work done, those enterprises benefiting from relatively superior objective conditions need to be charged a certain amount of net premium by way of taxation (for example, taxation on use of capital assets), turning over profits to the state according to different basic rates, and so on.

The calculation and measurement of "work done" is an important precondition for the correct implementation of the principle of distribution according to work done. However, we must not thus sum up the question of wage determination as only a question of calculating and measuring work done. The quantitative characteristic of the law of distribution according to work done is only a theoretical abstraction. In real economic life, the law of distribution according to work done appears as a trend that is independent of people's will, as any other economic law does. This trend in practice will change, owing to the influence of various circumstances. That is to say, in actual wage relationships, the trend of exchange between equal quantities of labor can be manifested only in relative and approximate proportional relationships.

### 3. Several Tentative Ideas About the Reform of Our Wage System

The reform of our wage system is a complicated and arduous undertaking of great importance, which is related to a wide range of questions. I will now present my views on three aspects: the goal, content and procedure of reform.

#### 1. The Goal of Our Reform

The goal of our reform determines the orientation and content of our reform. Therefore, the selection of our goal is of decisive importance. I think the goal of the reform of our country's wage system should be as follows: On the basis of a rational planning of wage levels (with adherence to the guiding principle of "paying attention to both the people's livelihood and construction"), we must enable the wage relationships between various types of personnel to comply more closely with the principle of distribution according to work done, and enable the role of wages as an economic lever to be more satisfactorily developed, so that the workers' enthusiasm can be more satisfactorily developed, economic benefits can be improved, and the pace of socialist modernization construction can be quickened. Whether this goal can be attained and to what extent it can be attained are the main criteria for judging whether the reform of our wage system is successful.

In choosing the goal of reform, it is not appropriate to overstress the raising of wage levels. To reform our wage system, our state should naturally incur a larger fiscal expenditure. However, money should be

spent on the most essential needs to improve the economic benefits arising from wage payments. In 1956, because wage standards were set at overly high levels in the reform of the wage system, great difficulties arose in subsequent wage payment work. We should remember the lesson from this experience.

In choosing our goal of reform, it is also inappropriate to overstress the unification and simplification of wage standards. The appropriate number of wage standards or wage grades or different forms of wages depends on whether this number is advantageous to a satisfactory handling of wage relationships between various types of personnel and to the development of the role of wages as an economic lever. In this respect, things will be all right if we do not resort to scholasticism.

## 2. The Content of Reform

The content of a wage system includes a series of mutually restricting links, such as wage standards, rank determination and promotion systems, an award and penalty system, various forms of wages, determination of jurisdiction over wage management, various wage management methods, and so on. We should deal with these various aspects in reforming and perfecting our wage system. However, considering that the defects of our existing wage system are egalitarianism as embodied in wage relationships and over-rigidity of our management system, I think that we should pay attention to grasping the following several reforms:

First, under the precondition that the state effectively exercises macro-economic control over wages (formulating relevant guiding principles and policies about wages, stipulating principle wage standards, planning for and distributing the total amount of wages, and so on), some power over wage management should be appropriately delegated to local authorities, departmental authorities and the enterprises, so that any wage problem can be handled in a way that is appropriate to the local condition, the time under consideration, the prevailing circumstances and the people concerned. In this connection, popularizing the system of floating total wages for task completion by an enterprise can be inexpensive reform with quick and great results. According to various enterprises' tasks in production and operation (concerning product varieties, output, net product value, taxes paid to and profits turned over to the state, and so on), and according to advanced and rational determination of output and personnel required, the total wages of various enterprises should be appraised and decided upon. Total wages for enterprises which cannot accomplish tasks of production and operation should be appropriately lowered according to a certain percentage of the net output value. Total wages for enterprises which overfulfill production and operation tasks should be correspondingly raised according to a certain percentage of the net output value. In order for relationships of economic interests between the state and the enterprises to be satisfactorily handled, a ceiling and a floor for the floating total wages of an enterprise can be prescribed, and total wages for enterprises which overfulfill their tasks by a wide margin can be adjusted through taxation. An enterprise should be empowered to rather flexibly distribute its total wages among [workers]

under the precondition that relevant [state laws] are not violated. As to the extra wage funds received because of an overfulfillment of tasks, the enterprises concerned should be empowered to use them for promotion, paying additional bonuses and allowances, improving worker welfare and so on. An enterprise's wages for its workers is part of its production and operation costs. When the floating total wages system for task completion by an enterprise is implemented, the state will no longer need to arrange promotion for workers of enterprises in a centralized way. Within the limits of policies laid down by the state, an enterprise can act on its own to arrange for the promotion of those workers subject to the wage grades system. The system of floating total wages for task completion can also be practiced by those artistic performance, medical and health and scientific research units which are operated in the form of enterprises.

Second, many wage standards and forms of wage payment should be used by enterprises to pay their workers. The workers in various localities, industries and enterprises differ in their professional level and contribution in work. The technical equipment, working conditions and natural resources available to them also differ. Therefore, it is inappropriate to apply the "eight-grade wage system" to all workers in our country in a centralized way. Different wage standards or forms of wage payment should be used for different types of workers. For example, workers performing complicated technical work can be paid according to a technical wage scale; workers who perform heavy physical labor or work at posts involving a high degree of automation can be paid according to a wage scale based on posts; and workers who perform simple and light work can be paid according to a system of basic wages plus allowances for work experience; and so on.

Third, cadres of state organs and institutions should generally be paid according to a professional grade wage scale. Considering the present situation of the contingent of cadres in our country, this wage scale can incorporate flexible measures such as subdividing a post into several grades, the overlapping of certain higher and lower grades in terms of wages, and taking the profession as the principal consideration with due consideration given to other factors. Considering that wage funds for paying this kind of personnel depend on appropriation of state funds, both the wage standards for this kind of personnel and the regulations governing promotion should be drawn up by the state in a centralized way.

Fourth, a scientific and practicable assessment system should be established. Our assessment system must be improved so that the wage system can become a powerful lever for raising labor efficiency and unhealthy trends and evil practices in wage payment work can be prevented. Over many years, many kinds of corrupt practices have existed in wage payment work in our country. An important reason is the lack of a scientific assessment system. An assessment system is the foundation of a graded wage system. If the assessment system is not sound, effective implementation of the graded wage system will be impossible. How to assess the labor efficiency of mental workers and the fruits of their labor is an old, big and difficult problem that we have been unable to solve over many years. We should integrate the institution of the professional grade wage scale with a reform of the award

and penalty system to overcome this difficulty. According to the characteristics of various types of mental workers, we should design various practicable assessment systems and methods. The study of assessment is an important branch of learning. We should pay attention to it and study it.

Fifth, how to resolve the relationship between wages and prices is an important question which the people in our country are generally concerned about. To reform our wage system, we should also study this question. I think that we should practice a system whereby changes in price indices that reflect workers' living expenses are followed by corresponding changes in money wages, so that real wages received by the workers will not fall when price indices reflecting living expenses rise.

### 3. The Procedure of Reform

Since the smashing of the "gang of four," the state has used a great deal of money under difficult fiscal and economic conditions to increase wages and thus to improve the livelihood of the overwhelming majority of workers. However, we should also know that because our wage system has not undergone any reform and grave defects in wage relationships and our wage management system have not been eliminated, therefore, although the state has used large sums of money to raise the wage level (including the level of some kinds of bonuses and allowances), the result is not conspicuous. At present, we must feel the intense urgency of the important undertaking of carrying out an overall reform of our wage system. Following the CPC Central Committee's plan, we must make the best of opportunities for several years to come and strive for marked achievements. The immediate and urgent task is to draw up as quickly as possible an overall plan for the reform of our wage system. Then we can implement this plan in stages and step by step.

I think that to flexibly integrate the reform of our wage system with the rectification of enterprises, we must implement the system of floating total wages for task completion, in separate groups of enterprises in separate stages, with the development of rectification of enterprises. Thus, the fruits of rectification of enterprises can be consolidated, the economic benefits yielded by enterprises can be enhanced, and a favorable condition can be created for the overall reform of our wage systems.

## ECONOMIC MANAGEMENT

### JOINT MANAGEMENT OF ENTERPRISES DISCUSSED

Shanghai SHANGHAI KUALJI /SHANGHAI ACCOUNTING/ in Chinese No 12, 25 Dec 82  
pp 11-15

/Article by He Shaosong /0149 4801 1345/, Ge Wenju /5514 2429 5468/, Zuo Bingxiang /1563 3521 4382/ and Zhou Rujun /0719 3067 0971/: "Exploring Various Questions of Joint Management in Management and Administration"/

#### I

/Text/ A joint enterprise is an integrated economic organization that is run jointly by two (or more) economic units, and its characteristics are: shared investment, unified leadership, joint management and shared profits and losses. In terms of the form of the elements involved in running a joint enterprise, some build factories in accordance with the principle of coordinating areas of specialization; some are based on existing production conditions and involve the joint management of products that are in short supply or of parts, in an effort to improve the capability to produce complete sets of equipment; and some use joint plant operation to solve the problems of crowded conditions and three wastes /gas, water and industrial residue/ pollution. Although the point of departure is different in each case, developing production, improving economic results and satisfying the needs of the market are goals which these enterprises share in common.

shared by all parties operating joint enterprises. It is one forceful measure for implementing the policy of readjustment, restructuring, consolidation and upgrading and is beneficial in ways such as maintaining the rate of progress in our adjustment period, economizing in state investments, and breaking through some of the fetters in the economic management systems. Because of this it has tremendous vitality. To sum it up, its main advantages are:

(1) Short preparation time, a small amount of capital needed, rapid on line production and good economic results

When industrial and agricultural parties jointly manage an enterprise, the agricultural side supplies plant facilities, the site and the labor, while the industrial side provides the equipment and technology, in most cases utilizing existing plant and equipment. Even if expansion or acquisition is involved,



it is on a small scale, taking much less time than would be the case in constructing a new factory. Therefore, there is a great savings in terms of needed investment. The Yangjing Paper Mill, the Buyun Tennis Shoe Factory and the Tangxing Shirt Factory are examples in which only 6 months passed from initial preparation to going into production, supplying products for the market.

Looking at the 73 joint enterprises that went into production in 1979, investments from both sides totaled 1.569 billion yuan, 713 million yuan of which were fixed funds and 856 million yuan of which were liquid funds; the value of output in 1980 was 6.62 billion yuan, the average annual value of output for each 100 yuan of funding being 421.92 yuan, providing profits of 1.307 billion yuan, each 100 yuan of funding providing an average of 83.30 yuan of profit and tax revenue each year, and both of these exceed the average levels for state run industries throughout the city. Although we do not have comprehensive statistics on joint enterprises for 1981, profits nonetheless have increased. For example, the value of output in 1980 of the Dazhihe Wollen Fabrics Factory was 19.07 million yuan, providing profits of 2.26 million yuan; the value of output in 1981 rose to 25.87 million yuan, providing profits of 3.61 million yuan; the two sides involved in the Minlian Rubber Manufacturing Plant in the Yangpu region jointly invested 80,000 yuan, and in the 7 months in which the plant operated during 1980 they obtained profits of 35,000 yuan and turned 18,500 yuan in taxes over to the state; in 1981, they obtained profits of 166,900 yuan and turned 66,000 yuan in taxes over to the state, profits and taxes amounting to 1.91 times /sic/ the amount invested. These examples make it clear that joint enterprises truly can achieve the goals of short preparation time, small investment, rapid production and good economic results.

(2) Increasing production of some products that are in short supply, supplying the market and easing the tensions created by contradictions between the urgent need for extending the production of certain products and the crowded conditions of plants and sites

Shanghai has more than 8,000 industrial enterprises, 58 percent of those in the metropolitan area. Because of successive years of continually tapping potential, innovating and reforming, not only utilizing original plant sites to the fullest extent possible, but also using certain welfare facilities for production purposes, we have produced a situation of extreme crowding and overloading, which has even lead to interlocking patterns involving some factories and private housing which has created severe "noise" and "three wastes" pollution problems for the residents and has caused contradictions between the residents and the factories which are intensifying daily. In regard to this, during the period of adjustment, Shanghai industries want to maintain the rate of development, further advance production and operate joint enterprises which are an effective means of easing tensions and solving the problems of finding plant and site facilities. For example, products such as production moulds and cutting machines produced at the No 5 Tool Plant are products in which supply meets neither export nor domestic market demands, but because of limits on plant space, their production cannot be increased. But at the Xinwei Hardware Factory, there is not enough work, there is plenty of

factory space and there is still 500,000 yuan of collective funds that can be utilized. If the two sides would work together, they could take advantage of the strong points and make up for the weak points, fully tap latent potential and increase production. Once the two sides agreed, joint management was put into effect and almost at once the value of production increased 50 percent, while profits increased 30 percent. There is also the gunnysacks, burlap, linen thread and knitting wool produced jointly by wool and hemp companies; the bicycle parts produced jointly by bicycle industries; and the cardboard jointly produced by paper manufacturing companies; all have achieved similar results. These products are all in short supply in the present market and their joint production is playing a great role in alleviating the supply problem.

(3) Expanding the extent of employment, increasing income and accumulating capital.

By the end of June 1982, Shanghai's light industrial network had already allowed the creation of 40 joint enterprises and by the end of 1981, 21 had gone into production, providing a total annual value of output of 46 million yuan. State run enterprises which participated in joint enterprises obtained profits of 3.28 million yuan and of the 90 million yuan of value of output planned for 1982, 40 million yuan had been completed by the end of June. The Patriotic Construction Investment Corporation of the industrial and commercial world of Shanghai has participated in 39 jointly run enterprises, supplying employment for 2,627 educated young people. The Wool and Hemp Plant jointly operated by Shanghai's Wool and Hemp Corporation and Songjiang has provided jobs for 900 young people and it is now planning to expand, after which it will be able to provide employment for even more young people from towns and cities. As another example, after the jointly run enterprise of the Xiangjing Paper Manufacturing Mill is completed, it can provide employment for nearly 200 young people presently waiting for employment and Xiangjing Commune can obtain approximately 1 million yuan in profits every year, and this will increase the amount distributed to commune members and improve their lives, as well as benefiting the commune by accumulating capital and developing production. Most enterprises also put 10 percent of their profits into a production development fund, both increasing the fiscal income of the state and accumulating development funds for the enterprise.

## II

The various forms of economic integration all offer specific advantages in regard to further developing the economy, raising present technical levels, proceeding along the path of specialization and cooperative production and breaking down the constraints of the different systems of ownership and overcoming regional isolation and industrial separation. However, certain problems in economic management exist in terms of operating joint enterprises and these need further discussion.

(1) There are different sets of cost standards and the financial and accounting systems are not united.

The costs and expenditure standards of joint enterprises are different with no unified regulations. Some operate on the standards of state run enterprises, some operate on the expenditure standards of the commune and some try to operate according to the expenditure standards of both state run enterprises and the commune, in which case expenses of the state run enterprise for which they will not be reimbursed are submitted for reimbursement through the joint enterprise, making the joint enterprise a shelter for the reimbursement of expenses.

Although the Municipal Financial Bureau has stipulated in principle that matters are to be handled "according to state run standards or according to collective standards," most joint enterprises do not operate their financial and accounting systems in accordance with this, or if they do, they are not strict about it. Because we lack a complete accounting system suited to the characteristics of joint enterprises, we cannot avoid confusion in financial and accounting matters. In addition, many finance and accounting personnel are novices whose professional levels are low and who are unable to keep accurate, up-to-date and complete accounts. Many mistakes are made and supervision is poor. Because of this, basic accounting work is clearly weak. As another example, in drawing the distinction between fixed assets and low cost miscellaneous materials, there are three different standards in use--200 yuan, 500 yuan and 800 yuan--which have not been unified (for example, the Bureau of handicrafts industry uses 500 yuan, while the brigade industries under the Agricultural Machine Industry Bureau uses 200 yuan), with the result that some state run enterprises invest electric fans and other low cost miscellaneous materials in joint enterprises, where they become fixed assets.

Concerning the management and use of fixed asset depreciation funds in joint enterprises, as well as the rate of depreciation, at present there is no uniformity, which results in the following: some place depreciation funds into the amount to be distributed for the year, not leaving them to be used by the joint enterprise, and this affects the renovation, overhaul and replacement of fixed assets; although some provide funds to the joint enterprise, there is no uniform standard for the amount to be provided and they provide what they like. There are similar problems in the drawing and use of funds for major maintenance and repairs.

Some units that get involved in selected joint enterprises, pass the burden of providing worker retirement funds and share funds to the joint enterprise and this has a definite affect on the development of the joint enterprise. Problems such as those mentioned above are in urgent need of solution.

(2) The value of the plant, equipment and financial and material resources put up by those entering into joint enterprises is often very different and there are no reasonable regulations.

Of the units which enter into joint enterprises, the agricultural ones usually put up the land, the buildings and the labor, while the industrial ones put up the equipment and the technical knowhow. At present, there are widely differing methods for establishing the value of fixed assets and material resources. Some set the value according to the original book value (without deducting for



depreciation), some set the value according to the net book value (that is the original value minus historical depreciation) and some set the value based on market replacement costs. There are also those who establish the value of relatively poor equipment based on damaged value and set the value of low cost miscellaneous materials at 30 percent of their original value. These ways of establishing value which do not reflect the actual value of the fixed assets are not appropriate. This is because doing so will affect the vital interests of the unit making the investment and also the accurate calculation of expenses and product costs and the accurate accounting of enterprise profits, and violates the principle of equality and mutual benefit and watching out for the interests of both parties in operating joint enterprises.

(3) There are many forms of profit distribution in joint enterprises which lack a reasonable and objective basis

The distribution of joint enterprise profits based on the relative proportion of the investment made by each party is a fairly widespread form of profit distribution. In addition to this, some determine the ratio of profit distribution through consultations and based on the role played by each party to the joint enterprise and the size of their contributions; some distribute profits according to the base figure for original profits, with the excess then being distributed in accordance with the proportion of the original investment made; some key, selected joint enterprises have adopted the method of using contracts with arbitrary bonuses to distribute profits to agricultural parties.

Each of the above mentioned four forms of profit distribution have their own characteristics. Among them, although the method which bases distribution proportions on the original base profits figures of the enterprises guarantees that each party to the joint enterprise the level of its profits, the original base profit figure itself is something that changes in response to the quality of the enterprise management. In addition, there are always unreasonable factors, such as objective factors in formulating prices, including relatively low raw material prices or especially high product sales prices which lead to greater profits. For these reasons, it is not easy for this form of distribution to carry out the spirit of maintaining equality and mutual benefit and is clearly detrimental to encouraging joint enterprises and promoting specialization and coordination.

(4) There are differences in the ways that each party to a joint enterprise handles financial responsibilities toward the state, because of the differences in the nature of the systems of ownership.

After a joint enterprise formed by two economic units with different systems of ownership distribute profits at the end of the year, the collectively owned investing party must turn over 55 percent of its profits in tax to the state if they are in excess of 80,000 yuan; but the publically owned investing party must combine the profits it gains with the profits from its own enterprise and turn them over to the state in accordance with stipulated collection procedures. If we do not change present methods, and make treatment in terms of independent accounting of the legal entities involved in joint enterprises uniform, then

the result will be that, under conditions of similar amounts of investment, the two parties will actually reap very different benefits. And in terms of such a joint enterprise, because there are no clear stipulations concerning the retention of profits during the year. This, of course, creates problems in terms of consolidating joint enterprises and expanding reproduction.

(5) Multiple leadership, everyone attending to matters and no one attending to matters

After a joint enterprise is formed, its the relations of subordination should be carried out as was agreed to before the enterprise was formed. However, joint industrial-agricultural enterprises are directly lead by the commune at which they are located, and are directed by the industrial side, while at the same time they receive guidance from the county Machine Industry Bureau, forming a situation of multiple leadership. Under this condition, each party to the management sends managers and, so it would seem, each would assume responsibility for their own area of work, but in fact in many matters no one assumes responsibility, and it is not easy to assume responsibility, leading to a mass of management problems and managerial chaos. For example, the industrial side sent people to the Tangzhen branch of Shanghai Shirt Factory No 5 to handle things, the commune industrial department would sometimes involve itself in matters of production rate at the branch factory and the County Agricultural Machine Industry Bureau also assigned tasks to people and wanted their person in charge of the Tangzhen branch factory to draw a management fee. Sometimes the purchase of other than raw and processed goods, goods whose price was fairly substantial, is approved by the commune, while at other times approval comes from the industrial side. Statistical tables on the value of output are reported to the specialized companies and to the commune, a duplication of statistics. But ordinarily, all sides remain apart, with no one assuming responsibility for carrying out supervision; and a number of problems which are difficult to solve become a matter of "three monks with no water to drink"--no one handles things.

(6) The technical capability of joint enterprises is weak and professional management backbone members are lacking, leading to poor product quality and low management and administrative standards.

Joint enterprises are comprised of two or more units, with personnel coming from all parties, each with their own persons in charge of technical tasks and a small number of key professionals and enterprise management personnel--those sent by the industrial side (Shanghai), which are actually in the minority, and most selected from among youths awaiting employment and agricultural commune workers. These people both are unskilled and lack work experience, and this makes it difficult to raise product quality, advance style and variety, conserve materials, strengthen enterprise management and be particular about economic results. For example, in the case of the joint enterprise formed by a bicycle plant and Dayang, the ratio of products that are up to standard is only 50 percent, there is a lot of scrap, raw material consumption is excessive, cost are high, and therefore the situation is in urgent need of change.

### III

Joint enterprises are full of vitality, being able to increase the wealth of the nation and meeting the needs of production and life; but we must further raise the quality of enterprise products, lower their costs, improve management and strive for better economic results. In accordance with the problems mentioned above, we offer the following trial suggestions:

(1) The standards for expenditures in joint enterprises must be in basic uniformity with those for state run enterprises. On this foundation, we must quickly establish joint enterprise accounting systems.

Expenditures in joint enterprises should basically be handled in accordance with the standards of state run enterprises. For example, vehicular travel expenses and meal expenses should not be any different than those for state run enterprises; but certain unique expenses and subsidies should be flexibly established in the manner of seeking the truth from facts. For example, joint enterprises whose products are mainly for sale abroad will inevitably encounter the costs of entertaining foreign visitors; core technical and professional personnel dispatched from Shanghai to the surrounding area or to foreign areas must be given appropriate subsidies to make it easier to mobilize technical strengths, to pass on technical skills and to make greater contributions, and so on.

In accordance with the scale of the enterprises, we must make appropriate stipulations related to distinguishing between fixed assets and low cost miscellaneous materials, most being able to use the 200 yuan or 500 yuan standards. There is no need to demand uniformity.

The characteristics of most joint enterprises which involve units whose systems of ownership are different are that they are not large, they produce only a single product, most of their financial and accounting personnel are novices whose professional levels are not high. The accounting systems established for these must be kept as simple as possible.

Because most of the machinery and equipment in joint enterprises is old and rebuilt, the depreciation rate and the major maintenance and repair fund should be greater than the standards for state run enterprises and industries. I feel that on average there is nothing wrong with a yearly depreciation rate of 10 percent; the fund for major maintenance and repair can be set at around 8-10 percent. Depreciation funds should be entirely left to the joint enterprise to manage and utilize. They should not be handed over to the state, nor distributed, but should go toward paying for replacement of equipment.

In order to see that the interests in the joint enterprise of the individual workers, the collective and the state are all reasonably taken into account, we must clearly establish the proportion of the retained profits to be put into the "production development fund," the "welfare fund," and the "worker bonus fund," and should confer the authority for utilizing these funds. At present, some joint enterprises stipulate that the industrial side should draw on 11 percent and the agricultural side 7.5 percent of the welfare fund. This seems to be reasonable and should be seriously considered.

(2) In establishing the value of fixed assets, such as buildings, equipment and property, we should adhere to principle and seek to be fair and reasonable.

According to the provisional stipulations of the State Council with regard to promoting economic integration, organizational coordination must be equal and mutually beneficial and must give due consideration to the economic interests of each side. In regard to the value of the property and material resources invested by each party to a joint enterprise, we should implement this principle. I will give special mention to the following several points:

1. Set values in accordance with market values. For example, the value of structures and equipment should be determined through negotiations between the two sides in accordance with the age of the property at the time of investment and with market values.
2. Set values in accordance with net book value. If book value is excessively low or excessively high, a lower or higher value can be agreed upon through negotiation.
3. If conflict arises between the two sides over the value of invested property, they can request a registered accountant office to establish a fair value.
4. Appropriate rent should be paid for the use of the land belonging to the agricultural side (including land occupied by buildings and local structures). Standard rent should be somewhat higher than would be the income from the production on that land for the entire year.

(3) Bonuses which are solely of benefit to the workers must be reasonably regulated.

Bonuses come from excess labor and granting bonuses must both accord with the principle of greater reward for greater labor and be reasonably distributed so as to mobilize the production enthusiasm of the employed workers. In this regard, on the one hand we must consider the level of bonuses for the entire year and, on the other hand, we must consider bonus grade differentials. Norms established for piece work wage systems must be reasonable. The standards in commune run enterprises can be referred to in establishing joint enterprise bonuses; but, because the products of joint enterprises are highly specialized, bonuses should be somewhat higher in joint enterprises. Some joint enterprises provide employment for youths in cities and towns who are awaiting jobs and also for commune workers, and in these cases bonuses should be calculated with reference to the bonus systems in state run and in municipal collective run enterprises. If profits reaped at the end of the year are relatively good, then more attention should be paid to improving the operation of collective welfare endeavors, such as nurseries, dining halls and dormitories.

Bonuses can be given monthly or seasonally, and there must be understanding and reasonable stipulations made with regard to reducing bonuses. Improper stipulations are detrimental to work and easily affect enthusiasm.

(4) Investment ratios can be used as a basis for profit distribution, but not the sole basis.

Under the principle of equality and giving due consideration to the interests of each side, the reasonable proportional distribution of profits in joint enterprises should be decided through negotiations. We feel that the following factors should be considered in regard to profit distribution:

1. In industries which involve a lot of hand labor and which are highly labor intensive, the proportion distributed to the agricultural side which supplies the labor can reasonably be somewhat higher; in industries in which there is a high degree of mechanization and which are highly technical in nature, the proportion of profits distributed to the industrial side which provides the technology and management skills should be higher.

2. In cases of production in which the rate of profits is generally relatively low, the proportion distributed to the agricultural side can be somewhat higher in order to ensure that the income of the agricultural side does rise, and in cases where the prices of raw materials is low or the sales price of products is high, causing profits to be high, the proportion distributed to the agricultural side should be reduced somewhat.

3. The proportion of investment can be a basis for determining the distribution of profits, but it cannot be the sole basis. For example, the Shanghai Weili Lamp and Lantern Factory entered into a interprovince joint enterprise with the No 2 Glass Factory in Anhui and put up one-third of the investment, but only received one-tenth of the profits; through joint management, this factory made two times as much annually as it did formerly and there was a greater guarantee in terms of variety and quality that the products would match the glass lampshades. On the surface, this was not equal and mutually beneficial because the Weili Lamp and Lantern Factory seems to get the short end of things, but both the Anhui factory and the Weili factory feel that: allowing the outside area to gain a bit more would stimulate enthusiasm for joint enterprises, could increase the completed sets of the original materials and expand product sales and that this would result in enhanced production and greater employment and would increase the profits that were ultimately realized, which would be of benefit to both to the nation and to both of them.

(5) Since a joint enterprise is a single legal entity allowed independent accounting, it should also pay taxes as an independent entity and should fulfill its obligation to provide income taxes to the state. Financial departments, taking the encouraging of joint enterprises as their point of departure, should give them preferential tax rates, fostering their function of supplying leverage. In order to make it easier to control tax resources, income tax should be handed over by the joint enterprise, establishing tax refund methods for publicly owned enterprises that participate in joint enterprise, or using tax funds to compensate for profits turned over to the state. In regard to joint enterprises that involve more than one province or municipality, we should determine the levy and distribution of taxes in accordance with production and supply and marketing channels. And we can promote using taxes to replace profits. In order to adapt to the characteristics



of the joint enterprises comprised of enterprises with different systems of ownership, we can independently establish a tax system and tax rates.

(6) The jurisdiction and structural composition of joint enterprises.

Because joint enterprises are composed of persons sent from each side involved, they must have a special unified and centralized organ of leadership to realistically manage the industrial techniques and technological processes, the consumption of raw and processed materials, the reduction of costs, quality inspection, financial affairs and accounting and fiscal discipline in order to change the present situation of chaotic multiple leadership.

Jurisdiction over joint enterprises which involve more than one province or municipality belongs to the leadership on site. Generally speaking, when first laying plans, Shanghai has greater responsibility for the leadership and support in technical affairs and must provide the needed technical personnel in order to improve product quality and raise the levels of economic management.

(7) In general, the technical, professional, management and financial levels of workers in joint enterprises is relatively low. In order to raise their professional abilities, we must strengthen investment in education, providing planned, step by step training of workers. Training can take many forms--study can be provided at large plants and training classes and after hours schools can be established to teach specialized knowledge of techniques, professional affairs, finances, etc.

#### IV

In joint enterprises in which the systems of ownership of the involved parties are the same, such as when both parties are publicly owned or when both parties are collectively owned, the wage system should be basically the same as in the individual enterprises. But in joint enterprises between publicly owned enterprises and collectively owned enterprises, if the personnel involved come from both sides, then the personnel from the industrial side must be extended wages in accordance with those stipulated for state run enterprises or collective neighborhood enterprises, while the personnel from the agricultural side must be extended wages in accordance with those stipulated for the commune brigade enterprises in that place. And not only that, workers that come from the agricultural side cannot join unions. This creates two standards of remuneration according to labor. Even if the personnel were all handled by the agricultural side, because of the wage levels would be subject to the restrictions of the commune brigade's year end distribution levels, the unity of the workers and their production enthusiasm would, to one extent or another, be affected. It appears that this problem cannot be easily solved and requires further study, and, moreover, in cases of joint management, it should be considered before the fact and handled appropriately.

## FINANCE AND BANKING

### MONETARY POLICY, ECONOMIC DEVELOPMENT ANALYZED

Beijing ZHONGGUO JINRONG [CHINA'S BANKING] in Chinese No 1, 4 Jan 83 pp 6-10

[Article by special commentator: "Stabilize the Currency and Develop the Economy"]

[Text] The 12th party congress laid down the strategic objectives, strategic priorities and strategic steps of China's economic construction. It called on the nation to strive, under the prerequisite of steadily improving economic results, to quadruple the total annual output value of industry and agriculture by the end of the century; to achieve in the 5 years from 1983 to 1987 a basic turn for the better in financial and economic situations, substantially improve economic results, and firmly maintain basic financial balance, credit balance and price stability. This call, as seen in the work of currency circulation, is to truly curb financial issuance and to issue currency according to the needs of economic development, to succeed in suiting currency in circulation to the needs of commodity circulation, thoroughly curbing excessive flows of bank notes.

Firmly maintaining a basic stability of currency has always been an indispensable and important condition to the continuing stability and harmonious development of the economy, an important matter affecting national construction and the people's life. Historical experience tells us that the more urgently we need to carry out large-scale construction, the more important it is to stabilize currency, otherwise more haste will mean less speed and even bring on serious losses and disruption. In times of economic difficulty, faced with commodity shortages and rising prices, we had been able to correctly recognize the danger of inflation. Now that the economy has turned for the better and there is a need to accelerate construction, it is easy to neglect the importance of stabilizing money supply. Now as the whole country from top to bottom is working with one heart and mind to realize the strategic objectives of economic construction, we must once again call on all sides to pay attention to this question.

Insufficient capital funds remains an outstanding problem in our effort to realize the overall objective of our economic construction. How to concentrate capital funds to help accelerate economic construction and also stabilize money supply is an important matter affecting the overall situation. To correctly solve this problem, we need to sum up the historical

experience since the founding of the people's republic, in particular the basic experience since the party's Third Plenary Session, and to decide, in light of new historical conditions, what kind of monetary policy we should adopt.

In the early days of the people's republic, in order to curb runaway inflation caused by the reactionary rule of the Kuomintang, in a situation where the seriously disrupted economy could not recover quickly, we undertook to expand the forces of state-run economy, put goods and materials under state control, fight speculations and profiteering and activities disrupting the financial market, and put the country's financial and economic work under unified leadership and control. Inflation was brought under control in April 1950. Then currency was stabilized on the basis of rehabilitating and developing production. In 1958, "left" errors, marked mainly by high targets, issuance of wrong orders, boasting, and immature pronouncement of communist goals, led to inflation and seriously endangered economic construction and the people's life. The party Central Committee promptly adopted decisive measures to readjust the economy, setting about to rehabilitate production while also retrenching capital construction, readjusting industry, cutting down on revenue expenditure, sending redundant staff to work in the countryside, and selling some products at high prices. Banks cut back on money supply, tightened loans, and controlled money put in circulation. In other words, the first step was to cut back on consumption and work to withdraw money from circulation. A total of 4.6 billion yuan, the bulk of the excessive flow of bank notes issued in the 2 years previously, was withdrawn from circulation in the 3 years from 1962 to 1964.

When the "Cultural Revolution" disrupted production, commodities fell short of demand, and currency issuance exceeded normal needs. After the crushing of the Jiang Qing counterrevolutionary clique in 1976, we committed the mistake of being overanxious for quick results and for a period of time continued "left" policies, aggravating economic imbalance. The Third Plenary Session of the 11th party Central Committee in 1978 called on the nation to pay attention to rectifying the serious imbalance in the economy and adopted the resolution to accelerate agricultural development. The working conference of the party Central Committee in 1979 put forth the principle of readjusting, restructuring, consolidating and upgrading the economy. A host of problems left over from the previous years, however, needed to be solved. In boosting prices of agricultural and sideline products, raising wages, and arranging for employment, the state greatly increased expenditure, resulting in financial deficits and excessive issuance of currency. During the governors meeting and planning meeting at the end of 1980, the party Central Committee decided to further readjust the economy, retrench capital construction, cut down on revenue expenditure, tighten control of bank loans, and at the same time work to invigorate the economy and increase commodity supplies.

The current readjustment is different from that of the sixties in that:

- 1) industrial and agricultural production rose rather than went down;
- 2) people's consumption in town and country rose considerably rather than



decreasing; and 3) the readjustment of industry does not simply consist of shutting down, suspending production, amalgamating or shifting to other products, but kept in operation a considerable number of large and medium-sized construction projects. Under the circumstances, simply cutting down money supply and consumption would inevitably result in a shrinking of production and would not achieve the objective of stabilizing currency. Therefore, in accordance with the spirit of the party Central Committee's directive to put special efforts into developing agriculture and consumer goods production, we further clarified the policy of actively supporting production and, through such measures as promoting commodity production, enlivening the economy, and improving economic results, matched currency circulation with commodity circulation. That is to say, within the scope of state plans, increase as many as possible loans to give priority support to agricultural and everyday consumer goods production, and match commodity circulation with currency circulation by effectively increasing commodities. Practice proves the policy to be correct and fruitful. In the 3 years from 1979 to 1981, we increased loans by 91.5 billion yuan, mainly for three uses: 1) 7.7 billion yuan for agricultural loans, accounting for 8.4 percent (not including credit co-ops). The Agricultural Bank in the past 2 years followed the guiding principle of supporting commodity production and improving economic returns, and reaped good results. 2) 75.3 billion yuan of loans for use as working capital of industrial and commercial enterprises, accounting for 82.2 percent. This has made it possible to ensure normal industrial production and commodity circulation without greatly increasing working capital. 3) 8.4 billion yuan for middle- and short-term equipment loans, accounting for 9.2 percent. Of this amount, about 70 percent was used for supporting consumer goods production. Rapid growth of industrial consumer goods has greatly reversed the shortage of consumer goods. The people's consumption level rose markedly as they became able to select from a wider and more abundant supply of foodstuff, clothing and consumer goods. This is a new situation, unprecedented since the late fifties. Bank loans played a definite role in this change. In the previous 2 years, the chief problem was shortage of marketable commodities which, if not remedied, would have led to an unstable market and unrest among the people. Now with more commodities to choose from, people's tastes have become more select so that some consumer goods do not sell well. This is a new change and should not be used to negate past achievements.

Markedly improved currency circulation in recent years, achieved on the basis of production, is expressed mainly in the following aspects: 1) More marketable commodities to back up issuance of currency. For each additional 1-yuan note issued, the corresponding increase in retail commodity sales (including trade fair sales) was 4.72 yuan for 1980, 4.87 yuan for 1981, and possibly over 5 yuan for 1982. The substantial increases in light industry output value played a big role in guaranteeing the withdrawal of currency from circulation. Increased light industry value for each additional 1-yuan note issued was 3.12 yuan for 1979, 4.63 yuan for 1980, 6.60 yuan for 1981. These are in terms of commodities. 2) The increase of currency in circulation has slowed, 26.3 percent for 1979, 29.3 percent for 1980, 14.5 percent for 1981, and an estimated 12 percent for 1982. 3) Imbalance in the distribution of currency volume between

regions and between town and country residents has improved. As a rule, imbalance in distribution should not be used to measure whether or not currency in circulation is normal. Balance is relative, whereas imbalance is permanent. Since the level of economic growth in different regions differs and the principle of distribution in the present stage is "to each according to his work," there can be no balance in the distribution of currency volume. What we are saying here is, the irrational imbalance resulting from commodity shortage and excessive flow of bank notes has changed for the better. For example, in the past because of commodity shortage, bank notes from many regions flowed into the large and medium-sized cities where commodities were in greater supply. Now that commodities are in abundant supply and can be bought locally, fewer bank notes went to buying things in the cities. Statistics show that in the first 6 months of 1979, 10 provinces, municipalities and autonomous regions were able to withdraw their bank notes from circulation, the three large cities of Beijing, Tianjin and Shanghai accounting for 61 percent of the entire amount withdrawn. In the first 6 months of 1980, 16 provinces, municipalities and autonomous regions were able to do so, the three large cities accounting for 44 percent. In the first 6 months of 1981, 24 provinces, municipalities and autonomous regions did so, the three large cities accounting for 34 percent. In the first 6 months of 1982, 27 provinces, municipalities and autonomous regions did so, the large cities accounting for 32 percent. The steady drop in the proportion of the three large cities shows that the regions have increased their ability to withdraw bank notes locally, and the gap in amount of bank notes held by town and country residents has also shrunk steadily. The amount of bank notes held by peasants at the end of 1981 increased by 12.3 billion yuan over 1978, a near two-fold increase. The amount of bank notes held by peasants accounted for 59 percent of the national total in 1978 and 62.6 percent in 1981. The average per capita amount held by peasants was 15.44 yuan in 1978 and 30.03 yuan in 1981. Average per capita amount held by town residents was 24.28 yuan in 1978 and 36.47 yuan in 1981. The shrinking gap in the average per capita figures between town and country is a reflection of China's economic growth, especially that of rural economy and peasant income.

To sum up, the monetary policy we implemented under the leadership of the party Central Committee and the State Council has indeed played a positive role. At a time when we faced financial difficulties and excessive issuance of bank notes, we increased loans on the one hand to invigorate the economy and on the other hand worked hard to withdraw bank notes in order to basically stabilize prices. This is no easy task but we succeeded. The economy and markets improved without much disturbance. This is an extraordinary achievement. The Western countries have applied many different monetary "theories" but have not been able to overcome "stagflation." That China has been able to resolve the excessive flow of currency in circulation at a time of financial and economic difficulties is a vivid expression of the superiority of its socialist system, and a strong indication that the principles and policies implemented since the Third Plenary Session are entirely correct. This is achieved with the concerted efforts of the entire party and people. We should conscientiously sum up the experience.

What do we face in the future? We need to concentrate more capital to implement priority construction projects, but so far the economic results of our production and construction have been far from satisfactory. Wastes are still serious in capital construction, production and circulation. Also, supply of some commodities either still fall short of demand or do not suit consumer needs. There are now fewer commodities that need to be bought through coupon rationing. Only a small number of name-brand goods, aside from grain, cotton, edible oil and cloth, still require coupons. If it is only a matter of tight supply of a few name-brand goods, it will have no decisive bearing on people's life or production and is no indication of how much currency is in circulation. As production develops, there will always be new products and name-brand products. It is only normal that people's demands will increase as their consumption level rises. The problem now is that quite a large number of products in short supply do affect the people's life and production. In the rural areas, mainly capital goods and building materials are in short supply. Typical surveys show that the proportion of cash which peasants paid for capital goods accounted for 12.5 percent of their total cash expenditure in 1978, 19 percent at the end of 1981, 24.2 percent, 40 percent in some regions, for the first 6 months of 1982. As their living standards rise, the peasants also demand more everyday consumer goods. The present supply falls short of demand. Factors contributing to unstable prices still exist and some prices are still rising. Data from the State Statistics Bureau show that price indexes for retail commodity sales in 1981 rose 10.7 percent over 1978, those in the first 6 months of 1982 rose 2.1 percent over the same period of 1981. Prices at trade fairs are still rising: For 1980, 1.17 percent in the rural areas, 11.6 percent in the cities. For the first 6 months of 1982, prices at town and country trade fairs rose 5.4 percent. We must pay constant and close attention to price changes and make serious studies and analyses.

In a word, the current situation is good, and there are favorable conditions. But we must also note that there are still many unsolved problems left over from the past, and new problems have arisen in our economic work in the recent 2 years. Conditions contributing to unstable currency still exist and currency in circulation still has to take a decisive turn for the better. We must not lower our vigilance. Experience in recent years shows that in order to handle well the relationships between stabilizing currency and developing the economy and achieve the tasks and demands put forth by the 12th party congress, we must insist on stabilizing currency through developing the economy, and evolve monetary policies that promote production and good economic results for the new period. Specifically, we must try to handle well the following relationships:

- (1) Handle well the relationship between commodity production and support to key construction projects. Years of experience in watching how the objective laws in currency circulation works shows us that in order to stabilize currency, we must energetically develop commodity production. We must not neglect support to industry and agriculture when giving priority attention to key construction projects. First, we must give active support to agriculture, implementing the comprehensive agricultural

policy of "no relaxation in grain production and active development of diversified occupations." The slightest neglect of any one aspect would result in lopsidedness. We must support the peasants so that while guaranteeing the fulfillment of grain production plans, they will be able to open up more avenues of productive activities and become well off more quickly. In this way agriculture will be able to supply industry with more raw materials, and sales market of industrial goods will expand. More prosperous markets mean a more reliable foundation for a stable currency. Second, active support of consumer goods production. Efforts in this aspect should not be relaxed simply because of some overstocking. We must make concrete analysis of commodity overstocking. There is overstocking of some commodities but also shortage in others. This means the favorable situation in commodities supply is not yet firm. While commodities in great demand should be increased in volume, more work should be done to improve quality and increase variety and specifications. A stable currency depends on marketable commodities which can be placed on the market with stable prices. Therefore we must energetically support commodity production. To speed up industrial and agricultural production, however, we must concentrate capital funds to ensure key construction projects and technical reforms of enterprises. Comrade Chen Yun said that ensuring key construction projects is a major buildup and a major revolution. Only when the nation's major revolution and construction are carried out effectively can there be effective small revolutions and constructions. Only when energy supply and transport are well built up can we guarantee rapid growth of industry and agriculture. This is the foundation of a stable currency.

(2) Handle well the relationship between capital construction and technical reform. China's 30-odd year experience of economic construction has proven again and again that suiting the scope of capital construction to the country's capabilities is the basic condition to stabilizing the economy and to stabilizing currency. The several occasions of excessive issuance of currency since the founding of the people's republic, aside from political reasons, were due invariably to unrealistic expansions of the scope of capital construction. Overexpansion of capital construction results in tight supplies of goods and materials on the one hand, putting a squeeze on both production and people's life, and on the other hand leads to too much investment, too many loans and excessive issuance of currency. What merits our attention is that unrealistically sharp increases in capital construction investments are again occurring in certain regions and sectors. It is entirely correct for the State Council to take measures of strict control. Banks must disburse money strictly according to plans and administer strict supervision over the recipient units to make sure they use the money according to State Council stipulations. While strict control and management must be exercised over capital construction, technical reform must be carried out with vigor and flexibility. The key to quadrupling total annual industrial and agricultural output value by the end of this century is to successfully implement technical transformation. We cannot achieve the objective of quadrupling if we do not change the technological backwardness, high consumption, and huge wastes in China's 400,000 enterprises. To implement enterprise technical transformation effectively, we must gradually raise depreciation rates and allow enterprises to retain



depreciation funds for their own use. Bank loans for fixed assets, aside from those earmarked for capital construction, must be used for technological progress and not to expand civil works construction or to "reproduce antiques and freeze technology."

(3) Handle well the relationship between the need and the possibility of acquiring capital. We must follow the important principle of acting according to our capabilities and not try to expand capital construction through issuing bank notes. To solve the problem of insufficient capital, we must, in addition to developing production and opening up money resources, work to improve comprehensive economic results, integrating microeconomics and macroeconomics. First, we must improve the economic returns of capital. Each production unit must produce goods that are truly needed by buyers, lower consumption and increase income. What is produced must suit the needs of the entire country. Unrealistic production and construction must be avoided. Then, under unified planning, bank disbursement of more funds for production and construction will not endanger currency stability. Second, we must cut back on capital funds being used by the circulation sphere and economize on working capital. Right now enterprises are using too much working capital, and its turnover is slow and economic returns are poor. If the amount of working capital per 100 yuan of output value used by industrial enterprises can again reach the 1965 level, the country can save 10 billion yuan. There is great potential here so we must take effective measures to save more working capital in support of technical transformation. Third, concentrate more capital funds through banks. In absorbing deposits, banks do not increase national income but convert idle funds and consumption funds in society into funds for production and construction. As production grows and individual income increases, there will be great potential here, though it is of course also limited, mainly by the increase in national income and consumption funds. We must, therefore, make unified planning and pay attention to balance while actively tapping potential.

(4) Handle well the relationship between comprehensive balance of credit revenue and expenditure and comprehensive balance of the economy. In the recent 2 years, stable deposits have increased, so have middle- and long-term loans. Loans for energy, transport and technical reforms in enterprises, in particular, contribute much to social benefits but relatively smaller short-term benefits for the enterprises. The repayment periods are long and sources of repayment are complicated. We must conduct effective feasibility studies on the one hand, and on the other hand balance capital funds and disburse middle- and long-term loans within our capabilities to prevent too-sharp increases in loans and excessive issuance of currency. In addition to bank credits, there have appeared in the past 2 years many different credit forms and organizations. We must adopt direct or indirect methods to incorporate all credit activities into a comprehensive credit program and provide active guidance. All capital for investment in fixed assets must strictly abide by fixed-asset investment programs and relevant procedures of examination and approval. Confusion in credit programs will mess up the entire economic planning, therefore we must strengthen management, work for comprehensive balance, especially the

comprehensive balance between funds and materials, seeing to it that every loan is linked to goods and materials, that loans are arranged and disbursed under unified management. This is an important prerequisite to guaranteeing the economic returns of loans, also an important condition preventing excessive issuance of currency.

Finally, we must point out that in order to correctly formulate and implement monetary policies, we must strengthen surveys and studies of monetary circulation, and adopt policies and measures suited to different periods and regions. Monetary policies are the core of financial policies. In other words, once the "core" is decided on, all credit policies and financial management policies must be worked out around it. No credit policies can be considered good when there is excessive issuance of currency. We must, therefore, study the constant changes, analyzing both historical data and the relationship between currency volume and commodity circulation, studying the pattern of changes between them. We must also conduct regular studies of changes in the entire economy and monetary situations and must not expect to come up with some fixed and permanent data applicable to different historical periods and regions. Only by constantly studying new situations and problems can we produce prompt readjustment measures, maintain stability in currency, promote overall economic upsurge, and contribute to the realization of the strategic objectives of economic construction.

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## FINANCE AND BANKING

### BRIEFS

COMMERCIAL TAX REVENUE--According to the statistics of the Provincial Tax Bureau, up to the 20th of this month, the collection of industrial and commercial taxes in Heilongjiang Province has exceeded the plan by the amount of 27 million yuan, accomplishing the yearly plan by 101.3 percent and an increase of 6.7 percent from that of the same period last year. Eleven of the 14 municipalities and prefectures have accomplished this year's tax collection plan ahead of schedule and above the quota. They are municipalities of Qiqihar, Hegang, Jixi, Shuangyashan and Yichun and prefectures of Nenjiang, Songhuajiang, Heihe, Da Hing'an Ling, Mudanjiang and Hejiang. [Text] [Harbin HEILONGJIANG RIBAO in Chinese 23 Dec 82 p 1] 12272

CSO: 4006/230

## MINERAL RESOURCES

### BRIEFS

GOLD MINE FOUND--The No 6 Geological Team of the Shandong Provincial Bureau of Geology again verified and appraised for the state a large gold mine--the Hedong [3109 2639] Gold Mine of Zhaoyuan County in 1982. The gold mine is located in the area where the Zhaoyuan and Yexian Counties meet and was known as "the home of gold." Near the Yantai-Weixian Highway, it has a good transport service. Silver, copper and sulphur are also found in this gold deposit. [Text] [Beijing GUANGMING RIBAO in Chinese 22 Jan 83 p 2] 12272

CSO: 4006/230



## INDUSTRY

### REPORT ON ADOPTING INTERNATIONAL STANDARDS

Beijing BIAOZHUNHUA TONGXUN [STANDARDIZATION JOURNAL] in Chinese No 1, 1983  
pp 3-9

[Article by Cheng Chuanhui [4453 0278 6540], director general of the State Bureau of Standards: "Work Report at the Forum on Exchanging Experience in Adopting International Standards and Establishing Plans"]

[Text] The forum on exchanging experience in adopting international standards and establishing plans has been held for 2 days. At the opening ceremony, we informed comrades about the directives of the leading comrades of the State Council on 12 December when the State Bureau of Standards submitted its summary report to the Standing Committee Meeting of the State Council. Everyone believed these directives were very timely and very important. A day and a half were spent on exchanging experience. The 13 units that spoke at the forum provided an overall experience in the present effort to adopt international standards and advanced foreign standards. Each sector, each profession or each specialization and each enterprise had its own experience. Some have had the experience of drawing up plans to use international standards or advanced foreign standards. Some others also acquired experience in implementing the standards. There are also experiences in using single standards and sets of standards. The direction of these experiences is correct, the method is effective, the economic benefits from implementing the standards are visible, and they will forcefully promote the development of our work to adopt international standards and advanced foreign standards.

This meeting was held at the great moment when the whole party, whole armed forces and the peoples of the whole nation are profoundly learning and implementing the resolutions and the spirit of the 12th Party Congress. The Central Committee of the party proposed the goals to create a new situation in socialist modernization and construction. It asked that by the end of this century, we should strive to quadruple the total annual production value of industry and agriculture throughout the nation under the prerequisite of continually increasing economic benefits. To realize the goal of "quadrupling", we must rely on progress in science and technology. This goal and such a guiding ideology are very correct and we insist on supporting them.

Our meeting is to study and discuss how we can adopt international standards and advanced foreign standards according to plan and step by step so that our standardization work can serve to promote scientific and technological progress, improve economic benefits, and hasten the economic buildup of socialism.

Now, let me talk about three problems:

#### I. The General Idea and the Arrangement for Adopting International Standards and Advanced Foreign Standards

Premier Zhao Ziyang pointed out: "By the end of this century, we should basically popularize advanced production techniques which are suitable to our national needs and which have already been popularized during the 1970s and the beginning of the 1980s in economically developed nations among our nations' plants, mines and enterprises, and we should form a technological system of our national character." Economically developed nations are mainly the six nations of United States, Soviet Union, Japan, West Germany, Britain and France. Most of their advanced technologies popularly used during the 1970s and the beginning of the 1980s are reflected in the more than 80,000 national standards of these six nations. They are also reflected basically in the more than 6,000 international standards established by the International Standardization Organization and the International Electrical Engineering Committee which they control. There are some others that are reflected by some advanced specialized standards and company standards.

The experience of recent years in adopting international standards and advanced foreign standards has proven the following:

1. We can concretely understand the international technological levels by adopting international standards and advanced foreign standards. Many technical problems that have already been solved abroad are all clearly stated in the standards. As long as each profession conscientiously studies and analyzes these international standards and advanced foreign standards, it can basically understand the current internationally advanced levels in production techniques. Standards are constantly renewed, they are generally revised every 3 to 5 years. By continuing to study and analyze foreign standards, we can grasp the level of foreign production techniques in time.
2. Adopting international standards and advanced foreign standards can provide technical projects for study. By comparing the international standards and advanced foreign standards with our nation's current national standards, ministry level standards and company standards, we can quickly find the gap between the two. This makes it easy for us to organize forces to conduct technical studies. Studies are done to eliminate the gap and to realize the level of advanced international standards.
3. Adopting international standards and advanced foreign standards can give enterprises a direction and a goal for technical improvement. The

implementation of new standards will surely cause enterprises to renovate their production equipment, technical equipment, means of testing and inspection. Therefore, adopting international standards and advanced foreign standards can promote technical improvements in enterprises and elevate the standard of technical equipment of all sectors of the national economy.

4. Standardization is the technical bridge that converts scientific research achievements into productive forces. Technical studies can produce achievements--new products, new techniques, new technological processes, new materials, new testing methods. After evaluation, they must be popularized and used in production. But they must first be established according to standards, then their production should be organized according to standards before they can acquire the ability to be batch produced.

These experiences show the important function of adopting advanced standards in promoting technical progress and they show that standardization work must precede other tasks in hastening socialist economic buildup.

The leading comrades of the State Council are very concerned about the work of adopting international standards and advanced foreign standards. As early as July, 1982, they proposed the requirement that our standardization work must grasp international standards in time, especially the standards for products of the industrially developed nations of Japan, the United States and West Germany. In June, when the State Economic Commission reported to the Standing Committee of the State Council, the leading comrades of the State Council said again: "Standardization work must be grasped well, we must elevate the level and standards and use international standards." In July, when the national forum on reorganizing enterprises reported to the State Council, the leading comrades of the State Council pointed out: "The basic work of enterprises is to establish quota management and technical standards." On October 13, when hearing the report on test manufacturing new products and popularizing scientific and technical achievements, they said: "New products must adopt international standards and advanced foreign standards. We must follow plans for the professions, we must know which equipment can be manufactured and which equipment cannot be manufactured. We can buy the patents or 'cooperate' with foreign nations in developing whole sets of equipment, machinery, single machines, components, spare parts which we cannot manufacture. But they must all meet international standards and advanced foreign standards. We must encourage enterprises to strive toward high standards and produce products according to international standards and advanced foreign standards. The expenditures for elevating standards should be compensated for." On the 16th, when hearing the report by the State Economic Commission on grasping a number of large enterprises well, they said: "Now some of our products have received the gold medal award but they still do not meet international standards, they are still below standard. First, we must grasp the products of the machinery industry, revise the national standards and the ministry standards and elevate them to the level of international standards." On 12 November, when the leading comrades of the State Council heard the report by the National Bureau of Standards, they further pointed out: "Standardization is the fundamental

task of our nation's modernization. It must not be relaxed, and not catching up will not do." "Since the nation is implementing the open door policy, we should use international standards to allow technology and standards to enter first." "We must plan a schedule for realizing international standards standards." "We must establish high standards, standards of strict requirements, low standards and substitutes will not do." We must conscientiously implement the directives of the leading comrades of the State Council and quickly grasp the work of adopting international standards and advanced foreign standards.

Adopting international standards and advanced foreign standards is an important technical and economic policy in developing our nation's socialist modernization and construction on an overall basis. It is a major decision of a strategic nature in our nation's standardization work. At the same time, adopting international standards and advanced foreign standards is a kind of importation of technology without repayment. We must have a firm attitude, conscientiously study, actively use them, take concrete measures, hasten the progress in adopting international standards and advanced foreign standards to promote our nation's technical progress. We plan to establish about 10,000 national standards by 1987, 60 percent of which should reach the level of international standards or advanced foreign standards. To realize this goal, we plan to do the following:

1. We should organize various forces and spend 2 years to translate the more than 6,000 international standards and the advanced foreign standards that are urgently needed at present, carry out analysis and comparison and necessary proof, make plans, and establish a good foundation for overall application.
2. Beginning in 1983, we should select a number of urgently needed products and organize their production according to international standards or advanced foreign standards. The standards for the raw materials industry, machinery industry, electronics industry must lead other professions. Energy and energy consuming equipment, export products, products that substitute for imports, products from complete imported facilities, products that have a vast and broad demand must first be used.
3. We should strive to basically use international standards for basic standards and for standards of general methods before 1985.
4. In 1983, we should begin to reorganize and revise on an overall basis the 1,900 product standards in the current national standards by contrasting them with the international standards or advanced foreign standards and strive to complete the task around 1985.
5. We should spend 5 years to gradually convert the current 18,000 standards set by the ministries to the requirements of international standards or advanced foreign standards. Some should be elevated to become national standards and some can be converted to special professional standards. From 1983, we must not continue to arrange and establish plans for new ministry standards.

We must strive to establish a solid foundation in the 1980's, popularly utilize the technologies that are basically popular in the 1970's and the beginning of the 1980's in economically developed nations during the 1990's by using and implementing international standards and advanced foreign standards on an overall basis to promote the realization of the goal of "quadrupling".

## II. Several Policy Questions in Adopting International Standards

Standardization is a comprehensive and basic work. Adopting international standards and advanced foreign standards involves a broad scope, the policy nature is strong, the work is difficult, the task of coordination is heavy. To guarantee that the work of adopting international standards and advanced foreign standards progresses smoothly, in March, 1982, the State Economic Commission, the State Scientific and Technological Commission and the National Bureau of Standards jointly promulgated the "method of managing the adoption of international standards (trial)". After over half of year of trial implementation, the situation in adopting international standards and advanced foreign standards was good, and every profession took action. At the same time, some new situations and new problems have emerged for us to study and solve. To hasten progress in our work, we must handle the following policy questions well:

1. We should adopt international standards and advanced foreign standards to gradually establish our nation's own system of standards.

The adoption of international standards and advanced foreign standards must be closely combined with our nation's situation, natural resources, technical and economic policies. At the same time, we must guarantee that the performance and the quality of the products are not lower than international standards or advanced foreign standards. In general purpose applications, interchangeability, safety, sanitation, we must coordinate and be consistent with international standards as much as possible.

Newly established national standards must actively adopt international standards or advanced foreign standards. The quality indices in the standards can be divided into grades according to need. Special standards (ministry standards) and company standards must all actively adopt international standards or advanced foreign standards.

Each profession must select the system of international standards or advanced foreign standards of its own profession and adopt the system. To suit international standards, basic standards, standards for general methods, safety standards, sanitation standards, environmental protection standards, and standards for basic components, spare parts, accessory components and elements must basically meet equivalent international standards. The standards of products must be combined with our nation's situation, we must note the trends of development abroad, select the advantages on the basis of fully considering technical advancement, completeness of series, economic rationality, use equivalent standards or refer to international standards or advanced foreign standards.



We should actively implement comprehensive standardization. In adopting international standards, we must adopt the whole set of standards from those for raw materials, elements, spare parts, accessory products, testing and inspection instruments and equipment to product packaging. All professions must cooperate closely and progress in a coordinated way.

We should advocate the establishment of special standards. To improve the quality of raw materials, and increase varieties, raw materials departments must establish special standards according to the requirements in use.

While adopting international standards, we must actively recommend some of our nation's standards that are of international level to the International Standardization Organizations or the International Electrical Engineering Committee so that they can be included in the international standard.

Enterprises involved in exports and enterprises with a higher technical standard and management level, enterprises that import technology and equipment from abroad, must first implement new national standards. Enterprises that temporarily cannot implement the new national standards because of some objective reason can continue to implement the original national standards after obtaining approval, but measures must be implemented to actively change over and to implement new national standards within a time limit.

In general, our nation's current system of standards must be gradually established through readjustment to become a system of standards that suits the stipulations of international standards and advanced foreign standards, that is at the same level as international standards and advanced foreign standards, that suits our nation's situation, and that is technically advanced.

2. Adoption of international standards must closely surround the general plan for technical improvement in the nation. Our nation now has over 380,000 industrial enterprises with over 400 billion yuan in fixed assets. The foundation is not small and the potential is very great. But 20 percent of currently available technical equipment have technical standards of the 1960's and the 1970's. Although 20 to 25 percent of the technology are already backward, but the degree of out-of-dateness is not too serious. In general, it can still suit the technical requirements of current production in our nation. The remaining 55 to 60 percent can no longer adapt to the requirements of upgrading and replacement of our nation's industrial products and improvement of product quality. If this situation is not changed, the production facility of enterprises, the technological equipment, the means of testing and inspection will still remain the same, products will not change, energy and material consumption will still be high, and there will be a danger of not realizing the goal of "quadrupling". Therefore, in the future, we must push forward the technical improvement of industrial enterprises according to plan, conscientiously overcome the unilateral pursuit of production value and output, of blindly expanding general productive capabilities but neglecting the tendencies of technical progress of the enterprises.

Carrying out technical improvements in existing enterprises step by step and with key emphasis is a strategic measure to hasten the modernization and buildup of industry. Adoption of international standards must be centered around the key points in the technical improvement of the national economy, the key points in the upgrading and replacement of products, the key points in scientific and technical studies. We must adapt to the needs of these key points and improve the standards of science and technology. At the same time, the adoption of international standards and advanced foreign standards must actively promote the technical improvement of enterprises, and provide a direction and a goal for technical improvement and renovation of equipment. We should fully develop the potential of existing enterprises, realize intensive and expanded reproduction, improve the standard of technical equipment of each sector of our nation's national economy, promote technical progress, hasten the upgrading and replacement of products, improve the performance and quality of products, increase social and economic benefits. Standardization agencies at each level must actively take the initiative to participate in the establishment of plans and planning technical improvement of enterprises, and adopt the plans, methods and experiences of international standards.

Each department and each locality must include the material and technical conditions necessary to implement standards in the plans for technical improvement and technical measures at each level. We have already suggested to the State Planning Commission and the State Economic Commission to include key projects in the nation's technical improvement plans and realize uniform arrangement. These are the key points that determine whether adoption of international standards can be realized or not.

### 3. Implement correct economic policies.

We must implement the policy of negotiating price according to quality. The State Council has already ordered the National Bureau of Commodity Prices to propose plans for implementing price negotiations according to quality, setting good prices for superior quality products, setting penalizing prices for poor quality products and outdated products. We must encourage scientific and technical progress, encourage the advanced, abandon the backward. To encourage enterprises to adopt international standards and advanced foreign standards, we have agreed in principle with the National Bureau of Commodity Prices that in the future, products produced according to standards should have a verified cost and price. Prices for products not meeting the standards will not be given a price. Products manufactured according to international standards or advanced foreign standards shall be inspected by national product quality monitoring and inspection departments after batch production officially begins. If the quality reaches international standards, the commodity price departments can re-evaluate their cost and reestablish their price to guarantee a reasonable profit for the enterprises. Products produced according to old standards will be set a low price for poor quality. Products that do not meet the requirements of the standards but still have a fixed useful value must be penalized in price.

Each department and each locality should give priority to enterprises that adopt international standards in giving bank loans, in importing advanced foreign technology and equipment, in energy supply and in raw material supply to encourage the enterprises to actively adopt international standards and to stimulate technical progress.

#### 4. Hasten the buildup of an information network on standards.

Information on standards is a preliminary condition in adopting international standards and advanced foreign standards. The standardization departments at each level are required to collect, translate, publish, exchange, pass on international standards and advanced foreign standards and provide consultation services. We must hasten the construction of the China Standards Hall, information centers of standards for large regions, information institutes (libraries, offices) on standards in each sector and locality. Each sector and each locality must develop an information exchange network on special standards of the professions and departments of consultation services, and gradually establish our nation's information network on standards.

Standardization departments of each sector, province and city, research institutes of each profession and factory must use many channels and many ways to gather foreign company (enterprises) standards. When such standards cannot be gathered, we can purchase samples and sample machinery or utilize the samples and sample machinery already purchased domestically for analysis and tests. Importing foreign technology and equipment is an important channel to gather standards of foreign companies (enterprises). When importing foreign technology, we must also import the standards at the same time.

Each industrial system must organize efforts to translate special technologies, hasten translation of international standards, improve the quality of translation, and avoid redundant work.

#### 5. Add testing and inspection instruments and equipment, establish testing and proving bases.

The use of international standards and advanced foreign standards to conduct tests and proofs require technically advanced testing instruments and equipment. In the production process, the implementation of standards also requires technically advanced testing instruments and equipment. Without high standard testing instruments and equipment, it is not possible to determine the accurate data of the standards, and we cannot determine the quality of products, and there will not be any high quality products. The use of tests and experimental methods meeting international standards is the prerequisite condition to measure whether a product meets international standards or not. Adding testing and inspection instruments and equipment is the urgent task at present. It is also an important subject of technical improvement by the enterprises at present. We must combine efforts with the technical improvements of enterprises according to plan and step by step to include testing and inspection instruments and

equipment in the national plans. The general purpose and popular testing and inspection instruments and equipment should be uniformly produced and supplied by the machinery and electronic industry. Production and supply of special purpose testing and inspection instruments and equipment should be organized by the special sectors. Each sector must include in their plans for technical measures the technically advanced testing and inspection instruments and equipment which are urgently needed domestically and which cannot be immediately produced, import some to satisfy urgent needs, and at the same time, organize domestic forces to imitate them and gradually establish them domestically.

Each sector must fully utilize special scientific research institutes and the currently available strength of backbone enterprises to establish testing and proving bases. In general, the profession or specialization should be taken as the unit to establish a more perfect base. The specialized scientific research institutes and backbone enterprises should shoulder the task of testing and proving international standards and advanced foreign standards for their own profession or specialization, and their efforts should be combined with key technical studies to serve production enterprises. Each productive enterprise must fully utilize this base, and it must not build redundant facilities.

6. Strengthen product quality monitoring and inspection, establish a quality certification system.

We should further strengthen the building of a network for product quality monitoring and inspection. Enterprises adopting international standards or advanced foreign standards should be monitored and inspected to make sure they strictly implement such standards.

We should actively develop the work of product quality certification. The product quality monitoring and inspection institutes, inspection centers and special testing and proving bases that have more complete means of testing and inspection, that have a relatively high technical standard and management standard and that possess conditions for certification should be selected. The National Bureau of Standards and special certification committees should be authorized to issue qualification certificates for products and products that have a popular market should first be certified for quality according to new state standards or special standards. After such products have been certified, a report should be submitted to the National Bureau of Standards so that it can issue a certificate and allow that product to display the certification symbol to improve the reputation of our nation's products in domestic and foreign markets.

7. We should provide technical training, strengthen standardization of enterprises.

To implement high standards, we must implement strict requirements. First, we must have a staff who understands international standards, who can grasp product technology standards and inspection regulations. At present, our workers are unsuited to the requirements for adopting international standards

and advanced foreign standards by the enterprises, their cultural level is low, their technical level is low, their management level is low. For example, an oxygen generator manufacturing plant imported the technology to manufacture an oxygen generator from a West German company. The Germans provided over 2,200 manuals and printed matter on standards. The factory did not digest the information on standards well, it did not allow the workers of the whole factory to grasp the information and to become familiar with the standards, and this affected the mastery of imported technology. Many problems occurred in the production process of the product. The factory invited a West German expert to lecture. The expert sent by that company talked entirely about standards. The factory asked the expert to talk about technical experience, the West German expert said: "As long as you follow the standards completely in production, there will be no problems and the product will be good." We must invest in knowledge and develop it in a big way, every worker from the plant manager to the worker must receive technical training. Translators, technicians, inspectors, managers, operators must all receive special training in standardization to improve their level of standardization technology and their sense of technical responsibility and create conditions for adopting international standards.

The adoption of international standards by an enterprise involves the enterprise's plans, production, technology, labor, materials, finances and many such departments and production and technical links. Such a complex and multiple productive organization cannot be managed simply by relying on administrative means. We must strengthen the standardization of enterprises, we must not only establish a set of complete technical standards, we must also establish a set of working standards and management standards. We must establish guarantee systems and an information feedback system so that the production, technology, business management activities of an enterprise can form an organic whole and so that the implementation of technical standards is guaranteed. The enterprises must actively establish in-house control standards higher than national standards and special standards. They should organize production according to in-house control standards and strengthen the competitive ability of products in domestic and foreign markets.

The implementation of standardization of enterprises must be combined with the reorganization of enterprises and establishment of the economic responsibility system so that there will be standards for work, there will be a reference for examination and so that the duties are clearly separated. Economic responsibility, economic results and economic benefits should be closely combined. We should promote rationalization and systematization of production, technology and management activities of enterprises to reach the goals of high quality, high efficiency, low consumption and low cost, implement reorganization of enterprises and the economic responsibility systems in the right places.

### III. Hasten the Establishment of Plans to Adopt International Standards

The adoption of international standards and advanced foreign standards involves every sector of the national economy and the links of scientific research, technology, production and management. One move leads all others.



We need to establish plans and establish goals, and work must be carried out according to plan and step by step.

The 12th National Congress of the party proposed a series of correct policies, strategic steps, strategic goals and key strategies to hasten socialist economic construction, and they have pointed out the direction for us to establish plans to adopt international standards. Premier Zhao Ziyang's lecture to the science and technology awards meeting on 24 October gave us the correct guiding ideology and principles to establish plans and regulations. The adoption of international standards must be closely centered around the strategic plans and guiding ideology of the party Central Committee to promote technical progress and to serve the hastening of socialist economic construction. We proposed an "opinion concerning the establishment of plans to adopt international standards". Let us talk about three opinions concerning the problems in the establishment of plans:

1. We must improve understanding and strengthen leadership.

Leading comrades of the State Council proposed that "in order for science and technology to develop, we must first grasp planning. When we have plans, we will have goals." They also said: "Do we carry out modernization sincerely or insincerely? An insincere effort is to establish several or several dozen advanced plants. A sincere effort is to reach the technical levels that are basically popular in economically developed nations in the 1970's and the beginning of the 1980's and to popularly utilize such technologies." They required us to "establish plans and study sincerely, not insincerely." We must seek truth from facts and work from a foundation. After a plan has been approved and established, it must be included in state plans. Each department and each locality must mobilize scientific and technical personnel of all sectors on a widespread basis, organize them, allow them to participate in planning the adoption of international standards.

The plans for standards are a part of the plans to develop the national economy, and also a part of the plans to develop science and technology. We must hasten the establishment of plans for adopting international standards, adapt to the needs of the plans of the two developmental efforts and provide a reference for national decisions concerning standardization.

Each department and each locality must include the establishment of plans to adopt international standards in the work of the whole situation. At present, our work to establish plans has developed very unevenly. Progress of most units is slow, and some units have not even started. They are very unsuited to the demands upon our standardization front brought about by the new situation. Can the plans for adopting international standards be quickened? The key lies in the leadership at each level. We hope the leadership at each level can place the work of establishing plans for adopting international standards at a fixed position, and grasp the work like it has managed the machinery industry sector and the metallurgical sector. It should strengthen management of standardization, mobilize forces of each sector, place standardization in the work of the whole situation, and push standardization forward.

2. We must start out by establishing plans for industries or specializations well.

The leading comrades of the State Council pointed out: "We must better establish national plans on the basis of plans for the development of the professions." "In the plans to develop the professions, we must not concentrate our attention purely on the output problem. Most importantly, we must consider which direction of development should be followed, what technical levels should be reached, what technical and equipment policies should be used, we should conduct investigation and study on an overall basis, thoroughly and calmly, systematically think over the situation, establish a general idea and an overall plan." These directives are very important. They are entirely suitable to our efforts to establish plans to adopt international standards. The experience in establishing plans to adopt international standards and advanced foreign standards discussed at this meeting all started out from the professions or the specializations. This shows our road is correct.

The establishment of plans to adopt international standards in the professions and the specializations requires first conducting investigation and study, conscientious comparison and analysis, combining efforts with our nation's situation, accurately determining the developmental trends abroad, selecting special systems of international standards and advanced foreign standards and adopting the systems as a whole. Basic standards and standards of general methods should all be equivalent to international standards so that they will correspond internationally. Product standards must be based on our nation's situation. We must accurately determine the development trend abroad, fully consider the completeness of the series of products, advanced technology, economic rationality, guarantee that product performance and quality are not lower than international standards or advanced foreign standards. The advantages should be selected and standards equivalent to international standards or advanced foreign standards should be adopted or international standards or advanced foreign standards should be referred to. Product standards should be closely linked with the compilation of the "standards systems table".

Professional or special plans must list concrete projects, and the projects should list the products and productive enterprises. They must list the raw materials, elements, spare parts, accessory products, product packaging that have adopted international standards or advanced foreign standards and which correspond to product standards according to requirements of comprehensive standardization. We should list scientific and technical studies and testing and proving projects for new technology, new equipment, new technological processes and new materials. We should list the measures needed for testing and proving in the production system to guarantee quality. We must list the advanced products and advanced enterprises of the professions or specializations which adopt international standards and advanced foreign standards. We must estimate the social and economic benefits from adopting international standards or advanced foreign standards.

We must include plans to adopt international standards and advanced foreign standards in the national economic development plans and scientific and technological development plans of one's own department and one's own region.

The plans of the sectors must be drawn up on the basis of the plans for the professions and specializations. Plans of enterprises must follow the directions and goals proposed by the professions or specializations. The plans to adopt international standards or advanced foreign standards by each sector, each profession or each specialization must be divided into near-term, medium-term and long-term plans, and they must include the requirements of each stage and plans for implementation. They should be closely combined with the strategic arrangement of national economic development and scientific and technical development.

### 3. Progress in establishing plans to adopt international standards.

The State Economic Commission proposed in June, 1982, that we should quickly establish an overall plan to adopt international standards and advanced foreign standards. The plan should be submitted to the State Planning Commission and the State Economic Commission for review and approval. We ask that each sector and each region to grasp the work of establishing plans well and to grasp it tightly. Before the end of June, 1983, the plans for national standards should be reported to our bureau and the plans for special standards should be copied and submitted to our bureau, and at the same time, they should be included in the long-range plans of each sector and each region. Our bureau will summarize them, review them and report them to the State Planning Commission and the State Economic Commission. We must strive to produce, promulgate and implement a national plan for adopting international standards and advanced foreign standards before the end of June, 1983. We ask each sector and each region to cooperate closely and to exert joint efforts.

## INDUSTRY

### NEWLY ISSUED STATE STANDARDS PUBLISHED

Beijing BIAOZHUNHUA TONGXUN [STANDARDIZATION JOURNAL] in Chinese No 1, 1983, pp 39 and inside backcover

[Chart: "Newly Issued State Standards"]

[Text]

#### Number of Standard

#### Name of Standard

#### I. Established Standards

GB 2423.11-82	Regulations for basic environmental tests of electrical and electronic products: Test Fd: wide band follower vibration tests - general requirements (trial)
GB 2423.12-82	Regulations for basic environmental tests of electrical and electronic products: Test Fda: wide band follower vibration tests - high repeatability (trial)
GB 2423.13-82	Regulations for basic environmental tests of electrical and electronic products: Test Fdb: wide band follower vibration tests - medium repeatability (trial)
GB 2423.14-82	Regulations for basic environmental tests of electrical and electronic products: Test Fdc: wide band follower vibration tests - low repeatability (trial)
GB 2423.28-82	Regulations for basic environmental tests of electrical and electronic products: Test T: tin welding
GB 2423.29-82	Regulations for basic environmental tests of electrical and electronic products: Test U: strength of lead-out end and whole body installation

GB 2423.30-82	Regulations for basic environmental tests of electrical and electronic products: Text X <sub>A</sub> : soaking in washing agents
GB 2424.11-82	Regulations for basic environmental tests of electrical and electronic products: guiding principles for sulfur dioxide tests of contact points and connectors
GB 2424.12-82	Regulations for basic environmental tests of electrical and electronic products: guiding principles for hydrogen sulfide tests of contact points and connectors
GB 2424.17-82	Regulations for basic environmental tests of electrical and electronic products: guiding principles for tin welding tests
GB 2424.18-82	Regulations for basic environmental tests of electrical and electronic products: guiding principles for soaking tests in washing agents

The above standards shall be implemented on 1 June 1983

GB 3187-82	Basic phrases and technical terms and definitions of reliability
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To be implemented on 1 August 1983

GB 3188-82	Exterior dimensions of electron tubes
GB 3189-82	Dimensions of connectors of lead-out caps of electron tubes

The above standards shall be implemented on 1 October 1983

GB 3190-82	Chemical composition of processed products of aluminum and aluminum alloys
GB 3191-82	Extruded aluminum and aluminum alloy rods
GB 3192-82	High strength aluminum alloy extruded rods
GB 3193-82	Hot pressed aluminum and aluminum plates
GB 3194-82	Dimensions and allowable deviations for aluminum and aluminum alloy plates
GB 3195-82	Aluminum wire for electrical conduction



GB 3196-82	Aluminum and aluminum alloy wire for rivets
GB 3197-82	Aluminum and aluminum alloy wire for welding rods
GB 3198-82	Pure aluminum foil for industrial use
GB 3199-82	Packaging, labeling, transport and storage of processed aluminum and aluminum alloy products
GB 3200-82	Technical conditions for molybdenum concentrates
GB 3201-82	Technical conditions for lithionite concentrates
GB 3202-82	Classification, brand name, naming of chemical products for ore selection

The above standards shall be implemented on 1 June 1983

GB 3203-82	Technical conditions for carburized steel bearings
GB 3204-82	Dimensions, exterior shape, weight, allowable deviation for cold drawn steel wire
GB 3205-82	Dimensions, exterior shape, weight, allowable deviation for cold drawn hexagonal steel wire
GB 3206-82	Carbon steel wire of superior structural quality
GB 3207-82	Dimensions, exterior shape, weight, allowable deviation for sterling steel
GB 3208-82	Microcoulomb test of total sulfur content in benzene products
GB 3209-82	Measurement of distilled residues of benzene products
GB 3210-82	Phosphorous iron
GB 3211-82	Metallic chromium

The above standards shall be implemented on 1 July 1983

GB 3212-82 Test for black and white television tubes

GB 3213-82 Tests for thyratron and air filled rectifiers

The above standards shall be implemented on 1 September 1983

GB 3214-82 Measurement of the flow of water pumps

GB 3215-82 General technical conditions for centrifugal pumps used in the technological processes in refineries, chemical and petrochemical plants

GB 3216-82 Tests for centrifugal pumps, mixed flow pumps, axial flow pumps and whirlpool pumps

The above standards shall be implemented on 1 June 1983

GB 3217-82 Magnetism test for permanent magnetic (hard magnets) materials

To be implemented on 1 July 1983

GB 3218-82 Technical conditions and tests for 5D model general purpose containers

GB 3219-82 Technical conditions and tests for ICC model general purpose containers

GB 3220-82 Dimensions and series of hoisted weights of container hoisting equipment

The above standards shall be implemented on 1 October 1983

GB 3221-82 General guidelines for docking and navigational tests of boats navigating inland rivers and powered by diesel engines

To be implemented on 1 June 1983

GB 3222-82 Measurement of noise in urban environments

GB 3223-82 Calibration of the free field of underwater acoustic transducers

The above standards shall be implemented on 1 July 1983

GB 3224-82 Rotary well drilling equipment - top and bottom cock valves for square drill rods

To be implemented on 1 November 1983

GB 3225-82	Standards for volume of shovel of hydraulic excavators
GB 3226-82	Standards for volume of shovel of mechanical excavators
GB 3227-82	Four directional transmission of handle of mechanically operated sleeves
GB 3228-82	Four directional transmission sleeve piece of handle of mechanically operated sleeves
GB 3229-82	Hexagonal transmission end of mechanically operated tools

The above standards shall be implemented on 1 July 1983

GB 3230-82	Standards for diagnosis and principles of treatment of vocational benzene poisoning
GB 3231-82	Standards for diagnosis and principles of treatment of vocational trinitromethylbenzene poisoning
GB 3232-82	Standards for diagnosis and principles of treatment of vocational chronic manganese poisoning
GB 3233-83	Standards of diagnosis and principles of treatment of vocational chronic carbon disulfide poisoning
GB 3234-82	Standards of diagnosis and principles of treatment of vocational fluorine diseases

The above standards shall be implemented on 1 June 1983

GB 3285.8-82	Chemical analysis of molybdenum oxide blocks Photometric test for copper by new copper reagents
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To be implemented on 1 April 1983

## II. Revised Standards

GB 342-82	Dimensions, exterior shape, weight and allowable deviation of cold drawn round steel wire (replaced GB 342-64)
GB 717-82	Pig iron for smelting steel (replaced GB 717-75)

GB 905-82	Dimensions, exterior shape, weight and allowable deviation for cold drawn round steel (replaced GB 905-66)
GB 906-82	Dimensions, exterior shape, weight and allowable deviation for cold drawn square steel (replaced GB 906-66)
GB 907-82	Dimensions, exterior shape, weight and allowable deviation for cold drawn hexagonal steel (replaced GB 907-66)

The above standards shall be implemented on 1 July 1983

GB 1730-82	Test of hardness of coats of paint - sway-bar damping test (replaced GB 1730-79)
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To be implemented on 1 May 1983

### III. Reviewed and Confirmed Standards

GB 256-64	Test of gasoline induction time
GB 257-64	Test of saturated steam pressure of fuel in engines (Leide method ?)
GB 377-64	Measurement of the content of tetraethyl lead in gasoline (chromate method)
GB 378-64	Corrosion test of copper plate by fuel in engines
GB 379-64	Test of acidity of gasoline containing liquid ethyl
GB 383-64	Colorimetric test of kerosene for lamps (heavy potassium chromate colorimetry)
GB 386-64	Hexadecane test for diesel oil (simultaneous flash method)
GB 387-64	Measurement of the sulfur content in dark colored petroleum products (pipe burner method)
GB 388-64	Measurement of the sulfur content in petroleum products (oxygen bomb test)
GB 392-77	Test of pressure separated oil in lubricating grease

GB 503-65	Measurement of the value of octane (Motor method)
GB 505-65	Measurement of the content of alcoholic sulfur in the sulfur of engine fuel
GB 506-65	Measurement of low temperature dynamic viscosity of lubricating oil
GB 512-65	Measurement of moisture in lubricating grease

The above standards shall continue to be effective starting from August, 1982

9296

CSO: 4013/124



## DOMESTIC TRADE

### INDUSTRY'S RESPONSE TO MARKET CHANGES SAID IMPORTANT

Tianjin TIANJIN RIBAO in Chinese 28 Dec 82 p 3

[Article by Li Genchang [2621 2704 7022]: "How To Strengthen the Response Capability of the Industrial Enterprises to Changes"]

[Text] At present, a gratifying situation rarely seen since the founding of the PRC has emerged in the market. It is not only that the supply of means of production is ample, but also that the contradiction of short supply of means of subsistence to demand has been alleviated, and many items even exceed demand. But there are still some problems, as certain commodities needed by consumers are still hard to get; contrastingly, the market is full of many industrial products which are not needed. How can such a phenomenon occur? A major reason is that the capabilities of our industrial enterprises to meet changes are weak, they cannot adjust according to the changes of the structure and the level of demands in the market. Some enterprises still know nothing about the outside world but are holding the iron bowl with their hearts and souls. There are three "slows" and one "long" here, i.e., they are slow in grasping the trend of the market, in trial producing new products and in preparing technological techniques and long in production cycle, so that their competitive capabilities are very weak. It can be certain that the economic result will be poor if the situation does not change. Such being the case, then what should be done in order to change the situation and to strengthen the capability of the enterprises to meet the changing market?

I. Strengthen the capability of the structure of products variety to meet changes.

The essence of economic competition between enterprises is the competition of products. If products do not match demands of the market, relying only on promoting sale, even though the volume of sales may increase for a period, their elimination would come sooner or later. The best way to improve the competitive capability of products is to enable the product to adapt to changes of the market demands, realizing that the distribution of new products on the market just at the time when consumers need them.

To accomplish this, it is frequently necessary at first to grasp the trend of technological development and the movement of supply and demand in the

market. The decision on what kinds of products to produce or to stop producing, and what kinds of products to reserve or develop is an extremely important matter related to the existence and development of an enterprise. Decisions must not be made subjectively. In order to make decisions correctly, it is necessary to conduct "three investigations," the investigation of technology to get a good understanding of its developing trend and the developing direction of products; the investigation of needs and demands to have a good knowledge of the movement of needs and demands and the pattern of changes; the investigation of the same trade to be well aware of the percentage held by the same kind of product in the market, the technical characteristics of the product and the economic information. On these bases, the evaluation of products planned to be distributed on the market and the productive technical capability of the enterprise must also be handled well. Only by going through every demonstration and proof of feasibility can a dependable plan for product development be concluded.

Meanwhile, the speed of developing new products should be accelerated. Development of a new product not only requires accurate perception and an early start, but also rapid production and distribution on the market as soon as possible to avoid the situation in which "flowers still bloom inside the yard but fruits have already spread all over the outside." The important method to step up the development of new products is to standardize the productive structure and parts and components, which will enable the products to have fewer basic types but more varied ones, and to have fewer special parts and components but more general ones. According to the parameter series of the products, different varieties of products needed by the consumers will be derived by adding a few parts or components to a basic type. Thus, the quantity of work in research, in experiment, in design and in trial-production could be reduced as well as reducing the time for technological technique preparation.

In addition, technological reserves should also be increased. If an enterprise wants its products to follow successively and emerge in an endless stream, it has to develop in advance new product technology. According to the developing trend of technology and the developing direction of products, technical research, design and trial-manufacturing of new products have to be conducted in advance for the purpose of ensuring the application of developed technology to new products. As much as possible, there should be first-generation products needed by consumers in front workshops; small quantities of second-generation products in rear workshops; third-generation products under trial-production in new products workshops; and fourth- and fifth-generation products being designed and researched in design sections. When a product cannot sell, it can be changed immediately to a product that is suited for sale, thus the enterprise is guaranteed to always have products whose competitive capability is strong on the market.

## II. Strengthen the capability of technological skills to meet changes.

In the preparation cycle of the productive technology for new products, a large proportion is held by the preparation of technological skills and according to a rough estimate, 20-25 percent is in small-quantity production

of a single item; 45-50 percent in medium quantity production and 60-70 percent in large quantity production. Because of the increase of products variety needed by the market and the shortening of upgrading and generation-changing cycle of products, the objective reality requires that repetitive labor in technological skill preparation must be reduced in order to speed up the preparation procedure. There are three ways to achieve this aim.

1. Expand the standardization of technological rules. In thousands of parts, there are many of the same type, of similar type or similar in technological and working process, which provide an objective base to standardize technological rules. According to the classification standard of the different similarity of parts, organizing the parts of various products into groups and selecting representative parts from them to work out representative technology by means of superposition. When a new product is trial-produced, most of its parts should be combined into groups of representative parts according to their classification and fill them out on technology cards of representative parts, and then starting the process. By doing so, it will save much time in technological preparation.

2. Achieve the standardization of technological equipment. A universal problem at present is that the designing and producing capabilities of technological equipment are inadaptable to the change of products variety, which is also an important cause of difficulty in producing new products. In order to put an end to this situation, the degree of standardization of technological equipment has to be heightened on the basis of the correct definition of its coefficient and enhancing its succession, standardizing its structure and component parts. Special technological equipment varieties which are unnecessary have to be cut down in order to enlarge the scope of combined technological equipment. New products, especially the parts process for small quantities, should use as many as possible the combined or general technological equipment, and special technological equipment should be prepared only for a few key and specific parts so as to save money and time in producing technological equipment.

3. Utilizing network technology to scientifically organize technological preparation work. In the procedure of technological preparation, there is a lot of technical and organizational work, not to mention material and human factors. All links and factors are conditioned and connected with each other. If the organizational work is not well arranged, the preparational cycle of technology is bound to be longer. Network technology is an advanced planning method as well as a measure of movement control. Utilizing this method, every link of technology, such as analysis, checking, plan-making, rule-drawing, equipment design and production can be scientifically organized together for overall planning and coordination, handling well key points, controlling the rate of progress, calculating the future and arranging ways to deal with problems in advance. All these can evidently shorten the cycle of technological preparation.

### III. Strengthening the capacity of production organization to meet changes.

Following the development of the socialist economy, the acceleration of products' upgrading and generation-change and the increase of varieties and standards have become an irreversing tendency. But the production of various varieties will complicate the production organization of enterprises. It was generally said in the past that the organization of production procedure should be carried out continuously, proportionately and rhythmically. It seems at present that another word must be added to describe a very important characteristic, that is "adaptability." If a production organization could not adapt to changes in products variety, so-called continuity and proportion are out of the question.

For strengthening the adaptability of production organizations, the specialization of production must be developed positively. The operation of various varieties doesn't mean working on "large and comprehensiveness" nor does specialized production mean a single variety. On the contrary, the development of specialized production may help the increase of varieties and the upgrading and generation-changing of products. Under the condition of specialized production, once the integral machine enterprise completes the design of a new product, the production of elements of a set and parts of a unit will be undertaken by coordinate enterprises, and the former's responsibility is to combine, to assemble and to examine them, so that the new product will come out quickly. This is faster and more economical than having one enterprise do everything. If this kind of work-sharing and mutual cooperation could form a kind of fixed relationship, it would not only be advantageous in the development of new products but in helping to increase economic result of society as well.

For the enterprises and workshops in which parts and units are produced, the variation of products variety will change their production from that of a few varieties in large quantity to numerous varieties in small quantity. This may cause a longer cycle of production and a decrease in economic result. The efficient way to prevent the occurrence of this kind of situation is to expand the grouped technical process. The application of this technique is to classify and combine in groups the enormous varieties of parts according to their geometric shapes and the similarity of their technological procedures; for instance, the machinery parts could be divided into parts of shaft and bearing, plate and cover, spacer and sleeve, ball-shaped and unique items, and so forth. A slight adjustment of the technological equipment could process a group of parts which have only a bit of difference in structure, shape, sizes and precision. By doing so, the small-quantity production of a single item could be changed to large one, improving the processing efficiency.

In strengthening the capability of production organization to meet changes, methods of reserving and stocking have to be improved also. The ABC controlling method on the under-production items used by some enterprises at the present time is classified and controlled from the angle of tied-up capital. A slight change will enhance the capability of production

organization to meet changes. It is to control the total amount of capital held up by stocking under-production items and to control the varieties of parts by category according to their range of usage. The special parts under category A, the basic type of parts or semifinished parts whose standards are not yet classified under category B and general parts and standard ones under category C. Strict control has to be put on parts under category A; generally, they will not be put into production without a contract, except few items which require a long production cycle. General control should be placed on parts under category B. As for category C, certain amount of stock should be appropriately reserved on the condition that the capital tied up by the stock of under-production parts does not exceed the set limits. Once a contract of consumer's order is received, the forces could concentrate on organizing the production of parts under category A, further process the parts under category B, and make use of parts under category C, whenever necessary, so that on-time delivery is ensured. This shows that the capital tied up by parts under-production could be reduced as well as speeding up the progress of production.

The ways to strengthen the capability of industrial enterprises to meet changes in the market are many-sided. Besides those mentioned above, the capabilities of policy-making bodies, management tactics and administrative organization to meet changes are also extremely important. It can be said that an enterprise's capability to adapt to changes in the market does comprehensively reflect the level of its management and administration. Therefore, enterprises should comprehensively improve management and administrative standards and on this basis continuously strengthen their capabilities to meet changes in the market.

12272

CSO: 4006/230



## TRANSPORTATION

### BUILDING, MAINTENANCE OF SHAANXI HIGHWAYS REPORTED

Beijing GONGLU [HIGHWAYS] in Chinese No 1, 1983 pp 33-36

[Article by the Shaanxi Provincial Traffic Bureau: "Shaanxi Province's Experience in Building Oil Paved Roads and Maintenance"]

[Text] Up to the end of 1981, our province had a total of 36,550.61 kilometers of highways, 8.5 times that at the beginning of liberation. Of this, 7,354 kilometers are oil paved roads (including 5,203 kilometers of major highways, 1,741 kilometers of county and commune highways and 410 kilometers of special highways). Among the ten prefectures and cities, 9 are linked to the provincial capital of Xian by oil paved roads. Among the 102 counties, cities and wards, 99 have oil paved roads. Oil paved roads have already developed their important function.

Our province's oil roads were paved on a trial basis beginning at the end of the 1950s. During the 1960s, the emphasis was on paving and building 500 kilometers of main highways. Relatively quick development occurred only in the 1970s. Starting from 1976, we continued to develop oil paved roads while improving some major highways according to the standards for second grade highways to satisfy the large scale increase in the amount of traffic. We also widened the paved road surface to over 9 meters. Now, the whole province has more than 360 kilometers of second grade highways. The area of paved road surfaces over 9 meters wide is nearly 600 kilometers. The effort has gradually improved the serious deficiency to satisfy transportation needs. In particular, the traffic jams entering large and medium cities were definitely eased.

In reviewing the course of development of paved roads in our province over the more than 20 years, we have obtained the following realizations:

1. Civilian laborers working on public projects and construction jobbers were combined with specialized work teams, and this hastened the speed of building of oil paved roads.

Before 1970, our province relied solely on specialized work teams to pave and build oil paved roads. Each year, an average of only about 10 kilometers was completed. Progress was very slow. In 1971, the Ministry of Transportation held a national oil paved roads conference in Henan. It clearly proposed the

request to hasten the development of oil paved roads. Based on this spirit, we held a meeting in time, studied and proposed the task of paving and building 500 kilometers of oil paved roads a year. This task was handed down to the prefectures. That year, 335 kilometers of roads were paved. The Yanan Prefecture handed down the task of paving and building roads of the Xi-Bao highway south of yan'an to each county on a contract basis and proposed the slogan of mobilizing the masses to "pave roads using small pots and small heaters." In one year, over 200 kilometers were paved. The experience of Yanan greatly inspired us and allowed us to realize that to hasten the progress in paving roads, we must rely on the locality, rely on the masses, mobilize civilians to work on public projects and construction jobbers and combine them with specialized work teams. In 1973, the Wuhan Conference of the Ministry of Transportation again clearly proposed the method of "three-level management, civilian laborers working on public projects, investment for contract work" in paving roads. According to the spirit of the Wuhan Conference and by combining efforts with our province's actual situation, we proposed the method of "three-level management, civilian laborers working on public projects, appropriate subsidies (each work day of one construction jobber mixing materials is subsidized 0.4 to 0.6 yuan, each work day of road paving is subsidized 0.8 to 1.00 yuan), investment for contract work, not collecting unused funds and not subsidizing over expenditures." This method mobilized the enthusiasm of each locality in paving roads. Each prefecture and county established road building command headquarters led personally by the county level leadership. Full-time cadres were transferred from elsewhere, the masses were mobilized and organized, sand and rock materials were quarried and prepared, road maintenance crews were transferred from elsewhere to join civilian laborers in paving road surfaces. From 1973 to 1975, over 50 counties in the whole province each year mobilized more than 10,000,000 worker-days of civilian laborers and construction jobbers to pave and build roads. Because civilian laborers and construction jobbers were combined with specialized work teams, the cost of paving oil roads was lower. Each kilometer of the main highways was subsidized 12,000 to 16,000 yuan. Each kilometer of secondary roads was subsidized 6,000 to 8,000 yuan.

The development of oil paved roads also stimulated the improvement of old roads. We clearly proposed that for all road sections to be paved, their bends must first be stemmed, the slopes must be reduced, they must be widened, and major highways must reach third grade technical standards and secondary roads must reach fourth grade technical standards. During the 10 years since 1972, 4,560 kilometers of major highways were improved. Because the enthusiasm of each locality to pave and build secondary roads was high, we proposed that paving and building oil paved roads must satisfy five conditions, i.e.: (1) the commune must first apply for permission and approval by each administrative level of the county, prefecture and province; (2) when a road has reached a fourth grade standard, its course must not be changed anymore; (3) the foundation must reach a definite height to avoid flooding; (4) road surfaces already covered by gravel must be able to remain open to traffic on clear days and rainy days, and the width must be over 5 meters; (5) the roads must withstand a day and night traffic flow of over 100 car-times. All roads not meeting these conditions shall not be opened. These conditions served well to guarantee the quality of paved roads and stimulated improvement of old roads.

Comrade Hu Yaobang has since last year pointed out several times in his speeches: "China must rely on accumulation of labor force," "in building roads, the local population must contribute some work, they are willing," "building railroads, highways, reservoirs, civilians working on public projects and contracting work, state subsidies are not entirely equalitarianism and indiscriminate transfer of resources." For more than 20 years, our province's experience in building oil paved roads show that these directives are entirely correct and feasible. In order for the construction of oil paved roads to develop further, we must insist on pursuing this road.

## II. We should Investigate and Study, Suit Measures to Local Circumstances, Respect Science, Make Technical Designs of Paved Roads Well

Our province began from 1963 to use residual oil to pave road surfaces. At the time, the road surface was treated as a wear layer, therefore, in construction, simple requirements for thickness, gravel specifications and the amount of oil were proposed. After practice, we gradually realized that the treatment of road surfaces with residual oil was a major aspect in technical improvement and in proving the quality of old highways. If the roads are paved and built well, they can be used for many years. Therefore, in 1966, the whole structural design for oil paved road surfaces was made. But because of the Cultural Revolution, this did not continue. During the mid-1970's, as the number of oil paved surfaces developed greatly, we gradually emphasized investigation and research, suiting measures to local circumstances, and solved the problems of designing oil paved roads.

In the design, we followed the principle of "stable soil, strong foundation, dense and compact surface" on the basis of investigation and study. Before designing, we investigated in detail the hydrology of the road foundation of old roads, the soil texture, the strength of the original road surface, the thickness, the structure, the condition of use, the traffic density, the climate of the locality, and local materials. We made numerical calculations as reference for the designs. Many years of practice prove that during the first one or two years in paving and building oil paved roads, the earth foundation must be improved, and after opening to traffic and rolled over by traffic, the road surface must be stable, and the quality of the oil paved roads thus paved are better. Settlement, cracking, loosening and such damage during the early stage easily occurred when the road foundation treated within the year had not stabilized. For the foundation layer, we calculated the thickness for strengthening, the foundation layer, the modulus of the foundation and settlement values, and the water stability structures, such as lime layers, marl gravel, gravel matched gravel mixed with lime. The general requirement was that lime must be added to the earth. The Xianyang-Masou section of the northern part of the Xi-Bao highway, the Huokou-Bengzhen section of the Xi-Bao highway, the Baocheng-Lianzhong section of the Bao-Nan highway are all oil paved roads paved according to designs meeting such requirements and they are still very good now. Conversely, many road sections were not designed according to the above requirements, because the strength of the foundation layer was not sufficiently strong, the water stability was poor, not long after they were paved, all kinds of serious damage occurred. In addition, we also consulted with the Xian Highway Research

Institute to conduct tests of various types of materials as isolating layers in severe freezing areas and saline land sections, and better results were obtained. In the surface layer, the general requirement is being dense and compact, stable and level. The surface treatment involved matching the grades of denseness and compactness of the framework. In the composition of rock materials, the ratio of the weights of fine material, fillings and main aggregate was 1:4:5 and the thickness was 2.5 to 3 centimeters. The ratio between oil and rock was 5.5 and 6.5 percent. The density and compactness and the coarseness of the road surface paved according to this requirement basically satisfied the requirements. In paving second grade highways, we used the structure of a mixed top layer and a poured lower layer. The poured lower layer is 4 to 4.5 centimeters, the thickness of the upper mixed layer is 1.5 centimeters, and the total thickness is 5.5 to 6 centimeters. In addition, on second grade highways and large slopes, we also used 1 to 3 centimeters of crushed rocks as the main aggregate to pave the residual oil and gravel road surface with a thickness of 3.5 to 4 centimeters. These structures are all relatively economical and practical and they are easy to construct. Now it seems that the upper mixed layer of the structure of a mixed upper layer and a poured lower layer is too thin and is not durable. In recent years, we have attempted to meet the need for highways with a traffic density generally reaching 5,000 car-times entering and exiting Xian City. The use of an upper asphalt macadam road surface of 2.5 to 3.0 centimeters with a 4 to 6-centimeter poured bottom layer has overcome the short duration of residual oil road surfaces.

When resurfacing old oil paved roads, we debated over how to treat the old oil paved road surfaces. One opinion was that the old oil paved surface should not be changed in the belief that this could increase the strength of the foundation layer. Another opinion advocated removing the old road surface, the reason was a fear of slippage. In our treatment, all old road surfaces that met the requirements in evenness, road surface arching and strength were left unchanged. The new road surface layer was added onto the old one. Those that did not meet the requirements and that had a strengthening thickness of less than 10 centimeters were generally removed. If the old surface was not removed, the new surface layer must be thickened. Level roads with a strengthening thickness of 1 to 15 centimeters would not be dug up during construction in the dry seasons, but during the rainy seasons, the old road surface and road segments on large slopes must be dug up and removed. Roads with a strengthening thickness of over 15 centimeters will not be dug up.

The road surface must satisfy the specifications stipulated by the traffic engineering standards. At the same time, we must consider the amount of traffic and the composition of mixed traffic to select different widths. Third grade highways near towns generally are designed to be 8 meters wide. Second grade highways are usually 9 to 11 meters, and a few roads are 12 meters wide. At present, some road segments are travelled day and night by up to 2,000 to 4,000 car-times, but basically the roads can still meet the need. In designing the width of roads, we wanted to solve the problem of traffic congestion when entering and leaving the city of Xian. We paved the center line of the main highway from the western suburb to the city. For the 40 meters wide highway, the width of the center line is 10 meters.





north is between the first 10 days of April and the end of August. Although construction can be carried out in September, but it is difficult for roads to form within the year. Serious problems have occurred in most of the road sections constructed not within this period. To avoid construction in low temperatures or during the rainy season, we issued plans as early as possible, prepared for construction well and began work early. This is also a very important question to guarantee quality and to reduce construction cost.

To provide necessary scientific data for construction, we stipulated that construction units must establish material quality inspection groups on site, and we pointed out that the seven routine tests, the quality of lime, the density and compactness of the base layer and the amount of oil used must all be used to guide construction. This not only benefits guaranteeing construction quality, it also establishes a technical file to create conditions for the use of science to nurture the land.

#### IV. Strengthen Maintenance and production, Continue to improve

According to several years of practice, we profoundly felt that maintenance of oil paved roads is actually a continuation of building roads. If maintenance of roads is done well, it not only can extend the number of years of use of oil paved roads, some roads with innate deficiencies could be remedied by maintenance. In a definite sense, maintenance work is even more important than repairing and building work. In the 1970s, during the period of great development of oil paved roads, we neglected maintenance. Up to 1976, the whole province's oil paved roads reached a total of 3,193 kilometers. At this time, the useful life of most roads was 5 to 6 years, and the inability of maintenance work to keep up with the need was a very outstanding conflict. This caused us to realize the extreme importance of maintenance work. Starting from this year, we have begun to adjust the rate of new construction of oil paved roads, and gradually turned towards strengthening maintenance and improvement. The concrete method was to apply oil and sprinkle sand over road surfaces which were loose and cracked with some cracks and leaks to seal the surface. A 1 cm covering surface (or thickness less than 1 centimeter) was applied to oil paved surfaces that had aged, that had dried and on which a web-like cracks had appeared. Seriously cracked and loose and scaling road segments were resurfaced with a covering layer (of thickness of 1 to 1.5 centimeters). The surface layer of road whose original surface was seriously worn, where large areas loosening, scaling and so on, where the amount of traffic dramatically increased was paved over. From 1976 to the present, annual expenditures at the provincial level amounted to 29,190,000 yuan for repair and improvement work, which covered 1,400 kilometers of road surfaces, and treated or widened and thickened 1,200 kilometers of road surfaces. These oil paved roads totaled 1,400 kilometers, constituting over 50 percent of the total mileage of oil paved roads. This has noticeably improved the road conditions of oil paved roads and realized the benefits they should.

For several years, maintenance of oil paved roads has been carried out in a systematic arrangement, with two main periods. The first period is from 1976 to 1978, and the second period is from 1979 to the present. The first period was a period of initial exploration and accumulation of experience. The second period is a period of systematic arrangement and implementation.

In view of the general situation, we see that the oil paved roads in our province at present, whether in quantity or quality, are far from meeting the needs of national economic development. Compared to sister provinces and regions, they are more backward and we must exert more efforts to catch up.

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## TRANSPORTATION

### STATE, DEVELOPMENT OF YUNNAN HIGHWAYS REPORTED

Beijing GONGLU [HIGHWAYS] in Chinese No 1, 1983 pp 30-32

[Article by the Yunnan Provincial Highway Bureau: "Basic Situation of Existing Oil Paved Roads in Yunnan Province and Several Measures to Fortify Them and to Improve Their Quality"]

[Text] At the beginning of liberation, our province only had 17 kilometers of oil paved roads. The rate of development was very slow. It was only until 1973 that a relatively large scale development began in the building of oil paved roads. During the 4 consecutive years from 1974 to 1977, the distance of newly built oil paved roads reached over 1,000 kilometers. Up to the end of 1981, provincial highways included 6,676 kilometers of oil paved roads, constituting 32 percent of the distance maintained by the province. Blackening of the road surfaces for our province's busy roads and important tourist routes was basically realized. This has provided good road conditions for passenger and cargo transport.

But oil paved roads have a definite useful life. In particular, our province's oil paved roads have developed under the national campaign to popularize oil paved roads. Most of the oil paved roads have a treated surface of 2 to 3 centimeters thick. At the end of 1982, already 1,966 kilometers of the roads had passed their designed useful life (6 years), constituting 29.45 percent of the existing oil paved roads. Although these oil paved roads that have surpassed the designed number of useful years have been carefully maintained by maintenance crews, some road segments are seriously worn, and their quality cannot be guaranteed if intermediate and major repairs are not carried out. According to a survey of the 934 kilometers of the highways of Kunwan, Xiyuan, Haimeng, etc., the area of defective oil paved roads constitutes 2.52 percent of the total area of all defective roads. The distance of defective oil paved roads constitutes 14.97 percent of the total distance of defective roads. The roads with a defective area over 1,000 square meters per kilometer constitute 2.31 percent of total mileage. Roads with a defective area over 500 square meters constitute 4.72 percent of the total mileage. Roads with a defective area over 300 square meters constitute 5.79 percent of the total. Roads with a defective area over 200 square meters constitute 18.11 percent of the total. Inspection and evaluation based on quality standards issued by the ministry show that 1.09 percent of the road surfaces of oil paved roads remain in good condition.

grade of below 10 points, 11.3 percent received a grade of below 10 points, 26.08 percent received a grade of below 30 points, 42.87 percent received a grade of below 35 points. The above figures show that many of our province's oil paved roads are defective, and as the number of years of use increases, the defects will greatly increase. This is an outstanding problem that is present in current highway maintenance work.

The following measures to fortify and improve existing oil paved roads should be taken in view of the fact that most of the foundation layers of our province's oil paved roads are a mixture of mud and crushed rock, the water stability is poor, the strength is insufficient, and many have only a surface treated layer. The mileage surpassing the designed number of useful years is high, there are many oil paved roads that require major and intermediate repairs, but the investment is large, the oil sources are insufficient, the properties of the oil for use on roads are poor.

### 1. Strengthen Overall Maintenance, Emphasize Maintenance Techniques

Surveys of the Kunwan road show that the mileage with poor drainage of water by the side ditches constitutes 7.73 percent of the total mileage surveyed. The distance of dirty road shoulders constitutes 21.5 percent of the mileage surveyed. The average grade points per kilometer of road foundation was 13.7 points, and greening scored 0.57 points. This shows that at present, there are still many shifts that grasp only the maintenance of the road surface and neglect maintenance of the road foundation and drainage facilities, and greening and maintenance work cannot catch up. The crews also lack measures of comprehensive treatment in highway maintenance. In the maintenance of oil paved roads, many shifts do not work conscientiously enough, do not follow work procedures in repairing oil paved roads. The tools used are backward, oil is applied with iron dippers, the use of oil does not take into consideration the oil and rock ratio, the rock materials used are not matched by grade, there is too much fine powdery materials, the rocks are too soft, when spread, the oil, rock materials are not spread on top in time, or the diameter of similar materials is not matched with the degree of oil spreading, rock materials are not applied in the direction of traffic, creating pockets and undulations which affect the evenness of the road surface. In order to improve the quality of daily maintenance and repair, extend the useful period of the road surface, the technical operation of maintenance of oil paved roads in the future must follow the "Handbook on maintaining asphalt road surfaces" and "Temporary repair of the design, construction and maintenance of oil paved roads." Shifts that maintain oil paved road surfaces should "insist on two aspects, be strict in three aspects, do not give roads under four conditions," i.e.: I, insist on using mechanized spreading of oil, insist on using mechanized spreading in operation, II, be strict in selecting materials, be strict in selecting the oil and rock ratio, III, insist on the oil and rock ratio at the road surface, IV, insist on repairing the road surface when the road surface is damaged, when the road surface is damaged, the road surface should be repaired with the same material as the original material.

## 1. Major and Intermediate Repairs and Rebuilding of Oil Paved Roads Must Be Carried Out According to Plan and In a Key Way

By the end of 1981, our province had 6,676 kilometers of oil paved roads, 3,968 kilometers of which had already passed their useful number of years. Between 1979 and 1981, 301.1 kilometers of oil paved roads underwent major and intermediate repairs. This year, we expect to complete major and intermediate repairs on 365 kilometers of oil paved roads. The two total 666 kilometers, constituting 16.78 percent of the oil paved roads which had surpassed their designed number of useful years. There are still 3,302 kilometers that must undergo intermediate repairs, major repairs or rebuilding. Our preliminary opinions on intermediate repairs, major repairs or rebuilding of these oil paved roads are as follows:

### (1) Classification of Surface Maintenance Projects of Oil Paved Roads

(1) Minor repairs and maintenance --These include removing mud, garbage and snow on the road surfaces to keep the road surfaces clean, treating road surface with oil pavements, treating pockets, cracks, loose road surfaces, repairing potholes, treating local depressions, undulations, uneven sides and such general defects. Minor repairs and maintenance work involve repairing a defective road surface area less than 7 percent the area of road surface in 1 kilometer once.

(2) Intermediate repairs--When the foundation of the oil paved surface is not strong enough, and when serious damage occurs on the road surface, requiring the road surface to be inverted, to be strengthened, to be heavily patched up or widened and the road arch readjusted, major repairs are required. These involve repairing over 7 percent of the damaged road surface once or carrying out technical improvement of the entire section within the original standards.

(3) Rebuilding--When the foundation layer of the oil paved road is not strong enough, when severe damage extends over 1 kilometer of the road surface, or when the original road surface is unsuitable for the current amount of traffic and requires a second higher grade road surface or when the road surface must be improved to become an asphalt macadam road surface, or asphalt concrete high grade road surface, rebuilding is required.

### (2) Plan for building oil paved roads and technical rebuilding over the 1981-1985 period

For intermediate repairs, major repairs and rebuilding of oil paved roads, the arrangement for state highways first followed by provincial highways, road sections with a large amount of traffic first and then road sections with a small amount of traffic, important tourist highways first and then ordinary roads, and exit roads of towns first and suburban roads second.

In 1981, 600 to 700 kilometers of oil paved roads should undergo intermediate repairs, major repairs and rebuilding. In 1982, 700 to 800 kilometers should undergo intermediate repairs, major repairs and rebuilding. In 1983, 800 to 900 kilometers should undergo intermediate repairs, major repairs and rebuilding. In 1984, 900 to 1,000 kilometers should undergo intermediate repairs, major repairs and rebuilding. In 1985, 1,000 to 1,100 kilometers should undergo intermediate repairs, major repairs and rebuilding.





surface must be removed so that the road surface is clean and dry. (2) Pot-holes, undulations on the road surfaces must be treated well. (3) A sprinkler should be used to spray the oil and then rock materials should be immediately paved. (4) Light rollers or iron rollers should be used to compact the road surface 1 to 2 times. (5) Traffic over the road should be controlled so that the road can be rolled and pressed into shape.

(2) Mixed layers should generally be used for major repairs. When there is no mixer, the method of mixing the upper layer and pouring the bottom layer should be used.

(3) When rebuilding an existing secondary high grade road surface into a high grade road surface, we must construct the road according to the design and the requirements stipulated in the standards, and conscientiously select, match and test asphalt, sand and rock materials to guarantee that the road will need no major repairs within 15 years.

(4) The designs for intermediate repairs should be reviewed, approved and accepted by the general road section and department. The bureau should review, approve and accept designs for major repairs and rebuilding of roads extending for more than 5 kilometers.

The criteria for accepting major repairs and rebuilding and the methods used should be the same for newly paved oil paved roads.

IV. Because of the current oil shortage and the poor performance of oil paved roads, every sector should exert efforts to supply oil well. Mixing and testing of oil should be strengthened by all units from the bureau to the general road section. After oil is shipped to the site, its management should be strengthened to prevent loss and wastefulness. Technical facts about the properties of the oil in use must be learned well to improve the quality of oil and the usefulness of the road.

## FENG-SHA-DA RAILROAD ELECTRIFICATION DISCUSSED

Beijing TILDAO ZHISHU [RAILWAY KNOWLEDGE] in Chinese No 1, 1983 pp 8-9

Article by Liu Tengwei [5491 4827 3956] and Du Quan [2629 5425]: "Electrification of the Feng-Sha-Da Railroad"

[Excerpts] As we look at our nation's map, we can see a truck railroad line connecting the North China region and the Northwest region. This is the Feng (tai)-Sha (cheng)-Da (tong) Railroad that is currently being electrified.

Feng-Sha-Da Railroad is situated in the western part of Hebei province and the northern part of Shanxi province. It begins at the main Fengtai Railroad station in Beijing, passes through Fengtai West, Sanjiadian, Yanchi, Shacheng, Yuanhua, Zhongjiakou, Guoleizhuang, Yanggao, Julebao, and reaches Kouquan in Datong. Its total length is 379 kilometers and it has 45 railroad stations along the route. The railroad penetrates Yanshan and runs along side the Great Wall, just like a long dragon winding through tall mountains. It is a part of the Beijing-Baotou and the Baotou-Lanzhou railroad that lead from Beijing into the Northwest region. It is also the most important route for exporting Shanxi

transport capacities are saturated, the Railroad Needs to be Electrified

Feng-Sha-Da Railroad has undergone technical improvements year after year, its transport capacities have continually been increased, why does it have to be electrified? This is determined by the important function it serves in the railroad network and its geographic position.

Feng-Sha-Da Railroad is a major artery in our nation's northern region. At the eastern end is the main line of Beijing, and it has the largest scheduled passenger train--the Fengtai West station--in the North China region. The railroad connects with the Northeast region, the North China region, the East China region, the Jin-Su-Guang Railroad, the Jin-Pu Railroad, the Jin-Shen Railroad, the Jing-Ji-Jin Railroad, and the Jing-Gin Railroad. The Datong Station at the



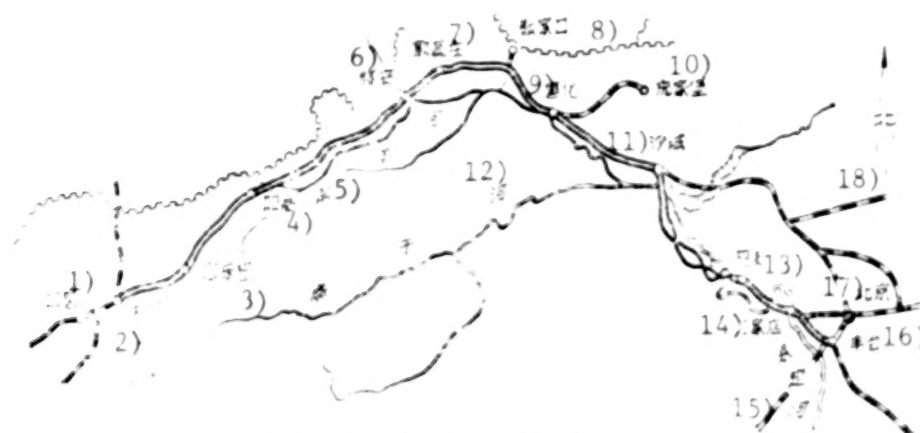
Improvements of railway bridges include increasing polyarsite and rubber road-justing the frame and the longitudinal section of the line, increasing the radius of given lines (enlarging the rail diameter), changing it to steel rails or laying new rails at 6 kilometers per hour and 100 km/hour, widening and fortifying the span of bridges, adding beams for additional loads, improving or rebuilding some bridges that are not up to standard. For example, the position of the bridge across a streamline is in the most threatened or flooding. The original, span with five openings should be changed to one with 12 openings. The vertical crossing ridge at Khabarovsk has to be changed to a new, horizontal ridge. On the entire line, an exceptional yamke bridge, the same bridge and 17 permanent small bridges have to be rebuilt. They span a total length of 57.7 meters.

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between Shacheng and Kouquan, all compensatory elastic chained suspensions and half compensatory simple chained suspensions are used. Inside tunnels, simple compensatory suspensions with epoxy resin insulators (or porcelain insulators) are used. The suspensions for the trunk lines and station lines are also different. The locomotives used are the Shaoshan I model electrical locomotive. The start-up towing strength of this type of locomotive is 95 percent greater than that of the Qianjin model steam locomotive and 28 percent greater than the Dongfeng 4 model internal combustion locomotive. It also has a high heat efficiency, a simple structure, a low expenditure for power and it can reduce transportation cost.

The Feng-Sha-Da Railroad electrification project began in 1978. To hasten progress, guarantee construction without affecting transportation, the method of "opening skylight windows" is used. Train traffic is interrupted within a fixed period to provide space and time for construction. For example, between Sanjiadian and Shacheng, the north bound and south bound lines were blocked off from traffic and a "window" was opened up for three hours to equip the trains and tracks. Between Guoleizhuang and Yanggao, a "window" is opened up for two hours every day for construction. This method can hasten the construction progress 20 to 30 times, and it is expected that work on the entire line can be basically completed by 1984.



丰沙大铁路示意图

(绘图 苏人)

Illustration of the Feng-Sha-Da Railroad

- |                 |                 |
|-----------------|-----------------|
| 1. Kouquan      | 10. Pangjiabao  |
| 2. Datong       | 11. Shacheng    |
| 3. Julebao      | 12. Sanggan He  |
| 4. Yanggao      | 13. Yanchi      |
| 5. Nanyang He   | 14. Sanjiadian  |
| 6. Huaian       | 15. Yongding He |
| 7. Guoleizhuang | 16. Fengtai     |
| 8. Zhangjiakou  | 17. Beijing     |
| 9. Guannan      | 18. North       |

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## TRANSPORTATION

### MEASURES TO RELIEVE STRAIN ON TRANSPORTATION DISCUSSED

Beijing JINGJI RIBAO in Chinese 17 Jan 83 p 1

[Article: "Four Urgent Measures Are Adopted by the Ministry of Railways and the Ministry of Communications To Solve the Problems of Strained Transportation"]

[Text] The contradiction of inadaptability between the capability of transportation and the volume of passengers and freight has become sharper and sharper since entering 1983. In order to ensure the developing speed of the national economy this year--"persevering 4 percent and striving for 5 percent of increase"--the departments of railways and communications have adopted four urgent measures to solve the problems of strained transportation.

First, to handle well the technological transformation of the railway lines and guarantee the outbound transport of coal excavated in Shanxi Province and the inbound transport of coal to the eastern and northeastern regions. The Ministry of Railways decided: the Fengtai-Shacheng-Datong Line which is now under construction has to stop its construction in January and February and concentrate on it again in the period between March and August. Thus, the freight volume of coal could be increased by about 600,000 tons in the 2-month period of January and February; the recondition of the Beijing-Yuanping Line must strive to return to normal transport by 1 May, then drawn by two locomotives in order to increase the fixed figure of traction from 1,200 tons to 2,800 or even 3,000 tons; in the Handan-Changzhi Line, paying close attention to the construction of the water-supply system to the locomotives and the formation of a complete electrical network to the newly built stations, increasing the number of coal trains, striving for the target of 350 trains of coal which will be transported from southeast Shanxi every day and reaching this target step by step; paying close attention to the multiple track constructions in lines of Shuangchiao-Baifeng and Changping-Shacheng and the construction of multilevel intersections in Siping; in the Beijing-Tongliao Line, a station at Huirang has to be added and the multiple tracks between Chifeng and east Chifeng have to be constructed; striving for the target of increasing the coal transported from inside Shanhaiguan to the northeastern regions from 20.5 million tons to 23.5 million tons this year, and increasing 4 million tons from that of last year to the eastern regions.

Second, to expand the marshalling of passenger trains and increase the capability of passenger transport. Emphasis should be placed on doing a good job in transforming the stations in the Beijing-Guangzhou, Beijing-Shanghai and Beijing-Harbin Lines; extending the tracks, platforms and rain-shelters in their stations; striving to increase the number of cars per passenger train from 13 to 17, and by doing so, the volume of passenger capacity could be increased without adversely affecting freight capacity.

Third, to expand the handling capability of ports. Some imported large tire cranes and special loading machines for lumber have to be added in ports of Tianjin, Qinhuangdao, Lianyungang, Shanghai, Huangpu, and Yantai; preparations are underway to build an aquatic timber storage area with a storage capacity of 2 million tons at the mouth of Liu River [3461 3109] in the lower reaches of the Changjiang River; funds should be raised by means of "labor compensation" to set up on-water locations for pouring and packing chemical fertilizer at the Beicang, Dalian, Tianjin, Huangpu and Zhanjiang Ports, which will enable the improvement of the pouring and packing capability for imported bulk chemical fertilizer to 2 million tons from last year's 0.7 million tons.

Fourth, domestic production or importation of locomotives and trucks are urgently needed. It has been arranged in this year's plan to produce 14,000 trucks, 9,000 of which will be put into service this year. At the same time, some diesel locomotives with large horsepower should be appropriately imported.

Besides the four main measures mentioned above, motor vehicles must play their part in lightening the pressure on short-distance railway transport and the full usage of water transport must be made to enlarge traffic distribution through river and sea routes.

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